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ABSTRACT

Economics and mass higher education have become firmly coupled not only in the minds of distance educators but also in those of policy makers, politicians, educational economists, and social scientists. These conference proceedings add to the knowledge and experience of colleagues from around the world who address the topics of cost effectiveness, efficiency, and benefits of distance education. Author, title, and an abstract are provided for the keynote address and two plenary lectures. The remaining 37 papers are provided in full-text, and address the following issues: public funding of distance education; government funding; planning and workforce needs; work based training; estimating the benefits of higher education and distance education programs; containing costs; student support; course feedback; videoconferencing; human resources; in-service teacher development; physical education courses; collaborative publishing in distance education; and materials production. Papers emphasize the cost factor, and address distance education in many world countries, including England; China; Thailand; Australia; Japan; Canada; South Korea; India; Sri Lanka; Fiji; Singapore; and the United States. An author index is also provided. (MAS)

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ASIAN ASSOCIATION OF
OPEN UNIVERSITIES

Economics of Distance Education

AAOU VIIth Annual Conference 1993

Conference Book

Organised by
香港公開進修學院
OPEN LEARNING INSTITUTE OF HONG KONG

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Economics of Distance Education

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21-25 November 1993

香港公開進修學院
OPEN LEARNING INSTITUTE OF HONG KONG

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— Foreword —

The annual conferences of the Asian Association of Open Universities are becoming important "not to be missed events" in the calendar of distance educators not only of Asia but also the world. The VIIth conference that we, at the Open Learning Institute of Hong Kong have the pleasure of hosting, revisits a theme that has become an important item in all discussions relating to distance education. Economics and mass higher education have become firmly coupled not only in the minds of distance educators but also in those of policy makers, politicians, educational economists and social scientists. This conference book contains and adds to the knowledge and experience of colleagues from around the world who address the topics of cost effectiveness, efficiency and benefits of distance education.

We at the Open Learning Institute wish to record our appreciation to all who have contributed to the conference and this publication. We hope this book will become a useful addition to the growing literature on distance education.

Prof. G. Dhanarajan
Director
Open Learning Institute of Hong Kong

— Keynote Address —

Lifelong Learning in a Learning Society: Who Pays? Who Benefits?

Sir Christopher Ball, FRSA
Director of Learning
Royal Society of Arts
UK

Personal History

Sir Christopher Ball is Director of Learning at the RSA (Royal Society for the encouragement of Arts, Manufactures and Commerce). He was formerly President of the Association of Colleges for Further and Higher Education (1990-1992), Warden of Keble College, Oxford (1980-1988), and Chairman of the Board of the National Advisory Body for Public Sector Higher Education (1982-1988). He is the author of a number of books and reports on learning, including *Fitness for Purpose* (SRHE, 1985), *Aim Higher* (RSA, 1989), *More Means Different* (RSA, 1990), *Learning Pays* (RSA, 1991), *Sharks and Splasher: the future of education and employment* (New Zealand Institute of Policy Studies, 1991), and *Profitable Learning* (RSA, 1992).

Abstract

The paper begins by defining and explaining what is meant by the terms *lifelong learning* and *a learning society*. Why is the concept of lifelong learning gradually replacing the traditional idea that initial education could be sufficient? The answer is related to the accelerating rates of change — technological, social, economic and political.

The idea of a learning society offers a broad vision. It rejects privilege — the idea that it is right for birth to determine destiny. It transcends the principle of meritocracy, which selects for advancement only those judged worthy and rejects as failures those who are not. A learning society would be one in which everyone participated in education and training (formal or informal) throughout their life. It would be a society characterised by high standards and low failure rates. In the past we have too often allowed ourselves to believe that high standards can be attained only at the expense of high rates of failure; or that low levels of failure necessarily entail low standards. In the learning society this would not be the case.

If we move substantially towards the ideal of lifelong learning in a learning society then the purpose, process and content of initial education is likely to be affected. In particular, we shall need to give more attention to the 'super skills' of learning.

The paper continues by exploring the functions of, limits of access to, periods, process and content of, lifelong learning — in order to try to answer the questions why? for whom? where? how and what? lifelong learning should be available.

The beneficiaries are seen to be three; the individual learner, the employer, and society in general. It logically follows that each of these should contribute to the cost. The paper explores how this might be done.

— Plenary Lectures —

The Cost/Quality Equation in Relation to Open Learning and Conventional Approaches to Tertiary Education in Developing Countries

Professor APR. Aluwihare
Immediate Past Chairman, University Grants Commission of Sri Lanka
Professor of Surgery, University of Peradeniya
Sri Lanka

Abstract

This plenary lecture shall demonstrate that in many developing countries, a certain portion of youth have to be able to be trained and educated to respond to a variety of demands placed on them. It is in this context that the cost-effectiveness and quality of non-full-time educational systems come into their own.

In order to develop and demonstrate the thesis, the lecture will look into the meanings and workable definitions of quality, value, need, demand, flexibility, capacity, cost and comparative outcomes in the context of both social and personal agendas in developing countries. The case that the non-full-time systems, particularly Distance Education Systems, are most cost-effective is advanced.

The Ascent of Technology in Mass Education: Economic Considerations

Professor Hidetoshi Kato
Director General
National Institute of Multimedia Education
Japan

Abstract

Unlike in the case of manufacturing industry, where cost accounting can be accurately conducted, "education" is a process of which economic analysis, in terms of capital investment and product output, is almost impossible, though series of rough "guess work" may be done based on experience combined with intuition. The paper will try to explore few approaches to prove (or disprove) economic advantages of utilization of advanced technology in higher education based on case studies and hypothetical model. Also, the paper will emphasize the use of appropriate technology depending on the needs of learners and socio-economic conditions of each society.

– Papers –

Comparison of Public Funding of Distance Education and Other Modes of Higher Education in England

G. Peters and J.S. Daniel, The Open University, UK

ABSTRACT

Since the 1 April 1993 all forms of public higher education in England have been funded by a unitary funding body. The Higher Education Funding Council for England has allocated funds for teaching on a formula linked to institutions' historic funding for 11 different subject areas. This paper reports the outcome of a review of the distribution of costs, fees and public funds for the Open University in these subject areas. It also makes subject-based comparisons of public funding for full-time study in conventional English universities and the public costs of study with the Open University. The paper concludes with some observations about the relative advantages of distance education in different subject areas.

BACKGROUND

The 1992 Higher and Further Education Acts established for the first time unitary' funding arrangements for all higher education taught in the UK. England, Scotland and Wales each established funding councils which were responsible for funding higher education in all public universities (including the ex-polytechnics), and colleges of higher and further education. The Open University (OU) had hitherto received its public funding directly from the Department for Education, the annual amount being determined by the Secretary of State after advice from an intermediary body known as the OU Visiting Committee.

Since the OU is the only UK-wide HE institution (HEI) all the HE funding councils were necessarily empowered to provide it with funds, but it was agreed that the English funding council would provide the basic grant for the whole UK and the others could fund special locally-important schemes.

The Higher Education Funding Council for England (HEFCE) provides funds for both teaching and the basic infrastructure and non-project elements of research. Over 90% of the Open University grant from the funding council fell within the scope of the teaching funds, although the University could for the first time receive funding explicitly for research.

The HEFCE took over responsibility for funding all its institutions from 1 April 1993. However, only from 1 August 1993 has it been able to bring them all within common funding methods and the same financial year.

The HEFCE adopted a formulaic method for distributing teaching monies which was based upon the funding and student numbers of each institution in the 11 different academic subject categories (ASCs) given in Table 1. The former polytechnics and colleges and the older universities had previously received funding on a subject basis although the categories used were different from each other and the ones adopted by HEFCE. They were all asked to re-assign their current student numbers and teaching funding to the new ASCs.

Table 1 HEFCE Academic Subject Categories

ASC 1	Clinical Subjects (e.g. medicine, dentistry, veterinary science)
ASC 2	Subjects and Professions Allied to Medicine (e.g. nursing, social work)
ASC 3	Science (e.g. biology, physics, non-social psychology, agriculture)

ASC 4	Engineering and Technology (e.g. materials, electronics, mechanics)
ASC 5	Built environment (e.g. architecture, planning, environmental technologies)
ASC 6	Maths & Information Technology (e.g. statistics, computer science, maths)
ASC 7	Management (e.g. business, accountancy)
ASC 8	Social Science (e.g. economics, geography, law)
ASC 9	Humanities (e.g. languages, classics, history)
ASC 10	Art, Design and Performing Arts (e.g. drama, fine art, music)
ASC 11a	Initial Teacher Training
ASC 11b	Other Education

COST ALLOCATION IN THE OPEN UNIVERSITY

The OU had not previously received subject-specific funding and had not needed to determine the public funding of individual subjects. It therefore embarked on an exercise to distribute its public funding amongst the HEFCE subject categories. The lengthy exercise undertaken by the University's Finance and Planning offices involved the examination of all OU budgets and determination of the costs and non-grant income associated with each course (Hall, 1992). Broadly speaking, the costs fell into three approximately equal categories: general overhead costs, for example the costs of the Vice-Chancellor's office, which were spread evenly across all students and then allocated to each course according to its total number of current students; those costs which related to specific courses, for example assignment-marking costs; and costs linked to specific subjects, for example faculty staff costs. Income was similarly allocated to each course, and the course-specific share of the OU's grant determined as the difference between its total costs and its non-grant income.

The HEFCE had already specified which individual subjects were to be included in each ASC, so once course-specific grant had been determined it was then grouped to yield DFE grant (i.e. public funding) for each ASC.

SUBJECT COMPARISONS

The OU does not currently teach any clinical subjects or those categorised as ASC 5 (Built Environment). Moreover less than half of one percent of its students study courses in ASC 10 (Art, Design and Performing Arts). However for the remaining 8 ASCs it is possible to compare the relative funding or public cost of different subjects. Since in the Open University (as in the rest of HEFCE institutions) the lowest public funding is associated with social science courses, it is possible to produce an index of the public funding of different subjects relative to social science funding.

Table 2 shows the public funding index for each of these eight HEFCE academic subject categories using the lowest (Social Science) as the base.

Table 2 HEFCE teaching grant index for the OU

ASC 3	Science	2.5
ASC 4	Engineering and Technology	2.3
ASC 2	SPAM	2.1
ASC 11	Education	2.0
ASC 6	Maths & IT	1.5
ASC 7	Management	1.4
ASC 9	Humanities	1.2
ASC 8	Social Science	1.0

The OU charges its undergraduate students the same course fee irrespective of the subject studied and since the fee is low relative to the public grant and undergraduates constitute the overwhelming majority of those in ASCs 3, 4, 6 8 and 9 these ratios closely reflect the relative costs of teaching students in these subjects.

COMPARISONS WITH THE REST OF HIGHER EDUCATION

It is hardly surprising that different subjects require different levels of funding, but since the OU is an entirely distance-teaching institution it is instructive to compare these ratios with those of the more conventional HEIs which teach the same or similar subjects but in an entirely different manner and with markedly different cost structures.

Three different comparisons are possible. First the HEFCE has published data on its funding for conventional full-time students in the whole of England (HEFCE, 1993a). Table 3 below shows the index of council funding for the OU and full-time education with social science as the base.

Table 3 HEFCE teaching grant index for the OU (full-time equivalent) and other English higher education (full-time student places)

ASC	OU	Full-time
3 Science	2.5	2.3
4 Engineering and Technology	2.3	2.6
2 SPAM	2.1	1.9
11 Education	2.0	1.7
6 Maths & IT	1.5	1.4
7 Management	1.4	1.0
9 Humanities	1.2	1.2
8 Social Science	1.0	1.0

The value of this comparison is, however, undermined by a key difference between the funding of conventional "full-time" higher education in the UK and almost all part-time study, whether distance education or face-to face.

As well as receiving public funding from the HEFCE the conventional HEIs receive tuition fees which, for almost all European community citizens, are also publicly funded. The maximum value of these fees is set by government and in practice institutions charge the maximum. In 1992/3 universities received approximately half of their public funds for teaching full-time students from the funding council and half from this "mandatory" teaching grant.

Maximum full-time fee levels are banded into classroom-based subjects, laboratory-based subjects and clinical elements of medical subjects. Unfortunately these bands do not completely coincide with the HEFCE's ASCs. However in order to "consolidate the expansion" of higher education for the academic year 1993/4 the Government reduced the level of fees for classroom-based subjects from £1855 to £1300 and did not uplift the others for inflation. The HEFCE decided to compensate HEIs for existing students and, in order to determine the amounts, it collected data on the distribution of fee bands in each ASC from all HEIs. As a result the HEFCE was also able to calculate levels of public funding for each subject category (HEFCE, 1993b).

The public-funding index for full-time student places in conventional institutions is given in Table 4.

Table 4 Comparison by subject of the public-funding index of Open University full-time equivalent student places, and of HEFCE funding and total public funding of full-time places in other HEIs

ASC	OU Public Funding	Other Council Funding	Other Public Funding
3 Science	2.5	2.3	1.7
4 Eng. and Technology	2.3	2.6	1.7
2 SPAM	2.1	1.9	1.4
11 Education	2.0	1.7	1.0
6 Maths & IT	1.5	1.4	1.3
7 Management	1.4	1.0	1.0
9 Humanities	1.2	1.2	1.1
8 Social Science	1.0	1.0	1.0

Although comparison of public funding in the Open University with public funding of full-time places elsewhere still shows a remarkable level of agreement in the order of individual subjects, the range is noticeably greater in the Open University.

There are several possible explanations for this difference. First, it could be that the public cost per student of teaching subjects like social science on a large scale at a distance are so low that subjects such Science and Technology, although still cost-effective, are relatively more costly. Second, it could be that the public funding reported by institutions other than the OU does not reflect just their costs but is also related to historic levels of public funding or their estimate of the best way to report their public funding in order to maximise their own benefit from the HEFCE methodology for teaching.

Further analysis lends some support to the first hypothesis. The Open University's unit of education has hitherto been a credit, which is determined as exactly the equivalent of half a conventional academic year's work. Because the HEFCE (with encouragement from the OU) hopes to move to a unit of education-based funding method in the future, OU grant for teaching was determined on funding per full credit. In other words, the OU public funding calculated for the HEFCE is for exactly half-time study. Therefore, for the first time it is possible to compare the public funding for full-time equivalent places in different subjects in the OU with public funding for those same subjects taught full-time in other HEIs. Such a comparison shows that when compared with a social science place the additional public funding of a full-time place in a conventional higher education institution is very similar to the additional public funding for a full-time equivalent place in the Open University. The exact data is

	OU	Other
SPAM	£1182	£1001
Science	£1644	£1891
Eng. and Technology	£1430	£1970

In terms of public policy the more interesting comparison is the public funding per full-time equivalent place in the OU as a percentage of that obtaining elsewhere. Table 5 shows the public funding of full-time equivalent study at the OU compared with full-time study elsewhere.

Table 5 The public funding of full-time equivalent study in the Open University as a percentage of the public funding of full-time study in other HEIs, by HEFCE academic subject category.

ASC	
2 SPAM	62%
3 Science	60%
4 Engineering and Technology	55%
6 Maths & IT	47%
7 Management	59%
8 Social Science	42%
9 Humanities	45%
11 Education	83 %

CONCLUSION

For the first time it has been possible to compare the public funding of places in the Open University with the rest of the higher education sector in England. It would seem from an initial comparison that, despite recent cost-effective expansion in the rest of higher education, places at the Open University still receive markedly lower public funding when full-time equivalent places elsewhere are compared. It would also appear that the range of public funding amongst subjects is greater in the Open University but that the additional costs of teaching science-based subjects rather than social sciences by distance education are of the same order as in conventional institutions.

For the academic year 1993/4 the Open University has received substantial funding to increase its science-based student numbers whereas there has been little additional funding to expand full-time places elsewhere. It will be interesting to observe how relative public funding levels change if this situation continues for some years.

REFERENCES

Hall, R.J. (1992), *Attribution of DFE Grants to HEFCE ASCs*, internal OU paper.

HEFCE (1993a), *Average Units of Council Funding for the Academic Year 1992-3*, Bristol: HEFCE, revised edition June 1993.

HEFCE (1993b), *Personal communication*

What Training should the Government Fund?
The Hong Kong Adult Learner's Views

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University of Hong Kong, Hong Kong

ABSTRACT

Governments have to set priorities for financing education. In considering the funding for vocational or professional training, the adult learners' views are relevant. This paper reports on an exploratory survey to study the Hong Kong adult learner's perspective on the issue of government funding for training in different sectors. The 6 sectors used as test cases were: banking, education, insurance, law, medical health and social work. 196 respondents who had participated in various adult education and training programmes in Hong Kong were asked to rank training of personnel in these sectors in terms of what funding the government should allocate and to give their reasons. Results were discussed in relation to alternative modes of funding training.

INTRODUCTION

In countries round the world, because of limited budgets, governments have to set priorities in the financing of education and training (Psacharopoulos, 1990). Distance education is one of these prorities to be considered. In a society like Hong Kong, distance education is primarily offered to working adults. Hence, the issue of whether the government should fund distance education in Hong Kong is related to the broader issue of how much the government should fund the retraining of working adults. Crucial to this issue is whether the government should fund vocational and professional training in all sectors equally. Are there sectors that deserve or need more government funding than others (Lee and Lam, 1992)? What do the adult learners participating in such programmes think? Do they expect the government to give more support to training in some sectors and less to others? What are the reasons behind their expectations? Granted that the adult learners' views may not be the only important consideration in making such policy decisions, it is important to know their views and take them into account when planning retraining funding options. This paper aims to discuss their views with reference to an exploratory study of 196 adult learners. Alternative modes of funding, apart from government money, such as payroll taxes, are also considered.

AN EXPLORATORY SURVEY

To find out the views of adult learners concerning government funding for training, an exploratory survey was conducted. 600 learners participating in adult education were contacted and 196 (32.67%) responded. They were students in a range of programmes from about 30 different subjects in the School of Professional and Continuing Education at the University of Hong Kong. The sample was drawn to represent the geographical distribution of the Hong Kong population, that is, Hong Kong Island - 22.0%, Kowloon - 35.8% and New Territories and Marine - 42.2% (Census and Statistics Department, 1991, 68). In terms of age, they represented the 20-39 age group more than the others (Table 1, p. 1). There were slightly more females than males as compared to the general population (Table 2, p. 1).

	Adult learners' survey		HK Census '91	
Age	Frequency	%	Estimated Freq.	%
Below 20	1	0.51	1 634 000	28.40
20-24	24	12.24	453 300	7.88
25-29	64	32.65	594 100	10.32
30-34	38	19.39	623 200	10.83
35-39	22	11.22	516 000	8.97
40-44	6	3.06	421 200	7.32
45-49	4	2.04	254 600	4.42
50-54	0	0.00	253 800	4.41
55-59	2	1.02	262 000	4.55
60 and over	1	0.51	742 000	12.89
Age unknown	34	17.35	0	0.00
Total	196	100.00	5 754 200	100.00

Table 1 Comparison of age of respondents with Census data

	Adult learners' survey		HK Census '91	
Sex	Frequency	%	Frequency	%
Male	85	43.37	2 900 344	51.12
Female	111	56.63	2 773 770	48.88
Total	196	100.00	5 674 114	100.00

Table 2 Comparison of sex of respondents with Census data

RESULTS

The question of government funding may not have a 'yes' or 'no' answer. It might be that more funding might be expected or necessary for some sectors than others. Six sectors were used as test cases in our opinion poll. They were: banking, education, insurance, law, medical health and social work.

Respondents were asked two questions:

1. If the government has limited funds for training, which of the six sectors should receive most training funds?
2. Why do they think so?

As far as this sample of citizens were concerned, public service or welfare sectors (education, medical health, social work) should receive more training funds than sectors traditionally identified as private or commercial enterprise (the legal profession, banking and insurance) (Table 3, p. 2). Within the same group, that is, public welfare or private enterprise, the difference in scoring between one sector and the next in rank was 3.12%. In contrast, the mean difference in scoring between the public welfare sectors and the private/commercial ones was 11.01%. There appeared to be a clear demarcation in the psychology of the respondents that training in some sectors had to be funded by the government while training in others should be of lesser priority.

As for the ranking of individual sectors, 'education' was ranked as the most important sector and respondents thought that it should be given most training funds by the government. 'Medical health' was ranked second while 'social work' came third. The other three sectors - the legal profession, banking and insurance - were ranked much lower in descending order of importance. The difference in weightage scoring between the sector ranked first (education) and that ranked last (insurance) was almost three times as much (9.57% as compared with 25.55%).

Sector	Score	%	Ranking
Public welfare sectors			
Education	394	9.57	1
Medical health	445	10.81	2
Social work	540	13.11	3
Private enterprise sectors			
Legal	813	19.74	4
Banking	874	21.22	5
Insurance	1 052	25.55	6
Total	4 118	100.00	

Notes:

1. If the sector was ranked 1 by the respondent, it was given 1 mark; if it was ranked 2, it was given 2 marks and so on. Hence, the smaller the total score, the more the respondents thought it should be given priority in funding for training.

2. A few respondents gave equal ranking to some sectors.

Table 3 Which sector should receive most training funds from the government?

The reasons given by the respondents fell into three categories (Appendix, p. 4):

1. The importance of that sector to the well-being of Hong Kong society.
2. The current inadequacies of service in that sector (not enough personnel or poor quality).
3. The availability of training funds from other sources (e.g., private enterprise).

The first two reasons were especially important to the respondents (Table 4, p. 2). Almost half the respondents (47.00%) cited the importance of the sector to Hong Kong as the reason why they thought the government should allocate more training funds to that sector. A major proportion (29.95%) felt that quality of service in a selected sector needed improvement through more training. Only a small percentage (8.76%) considered a sector as less deserving of central government funds because funds were available from other sources, such as in-house company training and so on. This indicated that for the majority of the respondents, whether a sector should be allocated more training funds had little to do with whether funds were available elsewhere and more to do with whether the sector was considered crucial to the basic welfare of Hong Kong citizens and whether the quality of that basic service was good enough.

Reason	No. of respondents	%
Importance of that sector to HK	102	47.00
Quality of service in that sector needs improvement	65	29.95
Training funds available from other sources	19	8.76
No reason given	31	14.29
Total	217	100.00

Note:
Some respondents gave more than one reason.

Table 4 Reasons for preferential allocation of training funds

IMPLICATIONS

The implications of such findings may not be immediately obvious. Two questions have to be considered:

1. What other indicators or perspectives on this issue could or should be considered besides the adult learners' views?
2. Granted that all perspectives have been considered and a model of differential funding is agreed upon, where should the remaining training funds come from, especially for the sectors with lower priority for government funding?

Apart from adult learners, the actual clients or participants in training or retraining programmes, there are five other groups that should or might have some influence in what training the government should fund, not necessarily in this order of importance:

1. The citizens not participating in adult education or training
2. The government
3. The international community in terms of target standards
4. The employers
5. Market forces

1. *The citizens not participating in adult education or training opportunities.* Our sample of respondents is not entirely representative of the general population of Hong Kong. In particular, it underrepresented the age group aged 40 or above. A good number of these are also taxpayers and have as much right as participating adult learners to give their

views on this issue. Put simplistically, it might be that adult learners should fund more of their vocational or professional training through higher course fees so that more central revenue could be allocated to infrastructure that would benefit the other taxpayers that do not participate in such training opportunities. However, the issue is not as simple. How does one measure benefit? Is it not possible that while one does not take advantage of the training funded by the government, one's child or spouse may do so and one may still benefit indirectly? And how is one to know whether one may benefit from such training five years down the road though one is not enrolled on such a programme at the moment? Are there not also other basic infrastructure which all citizens help to pay for but which may be of direct benefit to one section of the community more than to others? An immediate example that comes to mind are roads to sparsely populated areas. Are we going to make residents in those areas foot the bill for 'their' road since other citizens may only use them once in several years or not at all? What if they move away and others move there? Absolute equity in the economics of national development cannot exist.

2. *The government.* Although there are political philosophers that believe in consensual government, in which the government is little more than a democratic voice of the people, in actual operation in a society like Hong Kong, where the electorate is largely inactive, the government, for better or worse, has to develop, very much on its own, an agenda for action based on manpower projections and economic planning. This might not be explicitly articulated or publicised but the initiatives taken by the Hong Kong government in the area of vocational or professional training in the past several decades have reflected a partly planned and largely reactive strategy. In the 1960s, for example, when manufacturing expanded tremendously, the government took up what it felt was its duty to fund and provide training for a large number of workers for the growing manufacturing sector in Hong Kong. Now in the 1990s, when emigration has drained the manpower in several areas, the government is keener than ever to do large-scale manpower projections that, among other things, predict the educational level of workers needed (Education and Manpower Branch, 1990 and 1991). The tertiary education expansion in Hong Kong is in tune with such projections. This is not the place to go into the merits or demerits of manpower projections (Debeauvais and Psacharoupolos, 1985). Whatever their merits or inefficacies, the above two instances of government action suffice to show that the Hong Kong government has been directly or indirectly funding vocational or professional training through various avenues such as the Vocational Training Council or the tertiary institutions in Hong Kong. In some instances, budgets for specific training or retraining have been set aside and in other cases, general guidelines have been given. The question is whether the government should continue in this mode of operation or should it try to incorporate other voices and find other funding sources more actively?

3. *The international community in terms of target standards.* In terms of the role that a government should play, the Hong Kong government can look to other countries for alternative models or what is considered good government principles. One can appeal to the standards of the OECD (Organization for Economic Co-operation and Development) or the 'rich countries club' (The Economist, 1991, 206) as target norms of development guidelines. However, some of these countries, the United States included, are now suffering from over-indulgent education budgets in previous decades. In any case, differences in political structures or socio-consciousness make the model transfer not entirely applicable. Arguments can likewise be made for Hong Kong to copy the payroll taxation schemes in some developing countries, akin to the 'now largely defunct British levy-grant scheme' (Whalley and Ziderman, 1990, 378) in which taxes are raised for the explicit purpose of staff training. Singapore, with whom Hong Kong is often compared, has a payroll tax training scheme basedh on a cost reimbursement method of grant payment (Walley and Ziderman, 1990, 379). The range of alternatives available only shows that while other countries may offer models for reference, it is still for the Hong Kong government to establish and evaluate its own norms of funding.

4. *The employers.* A section of the community that has to be consulted are the employers, especially if the government wants to introduce payroll taxes of some sort to finance the training of working adults in some sectors, such as banking and commerce. Hong Kong is world renowned for its low corporate tax. There is therefore room for increasing a payroll element to fund training without unbearable strain on the fiscal health of companies. Yet, careful monitoring of the growth rates in different sectors has to be done so that such taxation will not further stifle growth in struggling industries. The issue of equity will again be raised. If payroll taxes go towards building central training facilities, some companies may be able to benefit more than others. Disbursement or rebate schemes, on the other hand, may lead to abuses such as staff being sent on courses which are of low training value just for the sake of claiming back some of the tax paid. Of course, it is possible to limit such abuses through the alternative approval approach, in which a grant is rebated only if the training undertaken meets a centrally defined point-system for systematic training (Whalley and Ziderman, 1990, 379).

5. *Market forces.* Even if employers are agreeable to help fund training and the government helps to provide centrally systematized opportunities, there may still be some training opportunities that fail to attract participants and others that are oversubscribed for the simple reason that training opportunities lead to jobs that vary in desirability. Training opportunities for attractive jobs may attract many participants even if course fees are high. Should the government therefore use job desirability as one indicator, among others, to determine funding of training, on the premise that if unattractive jobs are not given free or low-fee training, there will be no takers? Yet, it might be that even with free or low-fee training, some jobs still cannot attract takers, especially in an economy like Hong Kong's which has a very low unemployment rate hovering in recent years around 2%. The issues of training cannot be considered apart from manpower supply and demand. In some cases, such as construction or domestic workers, foreigners may have to be employed and/or trained. In other cases, for example, the education or nursing sectors, the job has to made more attractive through further career development opportunities or upgrading of the whole profession.

The above discussion serves to show that just as there are several voices to be heard on the issue of government funding for training, there are also some alternative sources of training funds:

1. Higher training fees to be paid by trainees.
2. More funds for some sectors to be made available from less government funds for other sectors.
3. Funds from employers through payroll taxation.

Theoretically, this is straightforward, but in the actual operation, equity and feasibility issues will continue to dominate. For example, it can be proposed that since being a doctor is an attractive job, high course fees can be charged and there will still be people willing to be trained as doctors. Yet, this is also a profession considered essential to the basic welfare of the Hong Kong community and should therefore receive more government funding. Besides, if fees are too high, some poor would-be doctors may not be able to afford such training. Does that mean only the rich can train as doctors? Of course, that scenario can be somewhat avoided through a scheme of scholarships earmarked for medical training so that the very bright, even if poor, can still go into this type of costly training. But what about the student that can become a reasonably good doctor but does not have good enough grades to win a scholarship? The old proverb of robbing Peter to pay Paul is not irrelevant and a good government will have to try to be fair, while maintaining the common good, though it may not always succeed.

CONCLUSION

In this brief paper, we have tried to show, through an exploratory study of adult learners' views, that while other models for funding training are possible, especially in the direction of differential funding, the actual mechanics of implementation bring forth a plethora of issues involving consultation of several sections of the community, a sensitive monitoring of the trends in its economy and the prevalent market forces for jobs and related training. They are not simply issues of what is fair or what is not fair. In particular, the funding of training cannot be dealt with apart from manpower planning or on a piecemeal basis. Nor is it the sole responsibility of the government. The employer, the worker and the non-worker have to aim towards common goals to maximize training resources.

REFERENCES

Census and Statistics Department (1991), *Hong Kong 1991 Population Census: Summary results*, Hong Kong: Census Planning Section, Census and Statistics Department, Hong Kong.

Debeauvais, M. and G. Psacharopoulos (1985), 'Forecasting the needs for qualified manpower: Towards an evaluation', *Forecasting skilled-manpower needs: The experience of eleven countries*, ed. R. V. Youdi and K. Hinchliffe, 11-31, Brussels: International Institute for Educational Planning, UNESCO.

Education and Manpower Branch (1990), *A statistical projection of manpower requirements and supply for Hong Kong*, Hong Kong: Education and Manpower Branch, Government Secretariat.

Education and Manpower Branch (1991), *Manpower outlook in the 1990's: An updated projection of manpower supply and requirements*, Hong Kong: Education and Manpower Branch, Government Secretariat.

Lee, N. and A. Lam (1992), 'Manpower needs and adult education provisions in Hong Kong: Policies and strategies', *Paper presented at the International Council for Distance Education (ICDE) 16th World Conference, 8-13 November, 1992, Thailand.*

Psacharopoulos, G. (1990), 'Priorities in the financing of education', *International Journal of Educational Development 10*.157-162.

The Economist (1991), *Pocket world in figures*, London: The Economist Books Ltd.

Whalley, J. and A. Ziderman (1990), 'Financing training in developing countries: The role of payroll taxes', *Economics of Education Review 9*, 377-387.

APPENDIX

Examples of the three reasons given for preferential allocation of government training funds are as follows:

Reason 1 - Importance of the sector(s) preferred

1. Social problems are severe in HK; education influences our next generation.
2. I rank 'Training of teachers' as the first one because teachers of higher qualifications play a crucial role in educating youngsters.
3. Because life and health are the most important things for human beings.
4. To sustain Hong Kong as a financial center, banking personnel are highly needed.
5. Law is the righteousness of the society and lawyers are professionals who perform the law. In my opinion, law should be the most important ingredient of the prosperity and stability of Hong Kong. Teachers and other education personnel are persons who train the future pillars of Hong Kong. Teachers are very important and they should be of high quality and well trained.

Reason 2 - Inadequate service in that/those sector(s)

1. In Hong Kong, I believe that the number of doctors available is smaller than the number of patients. A distribution of funds to education can attract more people to teach and reduce the need for employing foreign teachers to teach in HK.
2. The health services and education still need much advancement, and the shortage and brain drain are more serious in these two fields.
3. Teachers are not adequate in Hong Kong. Also, the lack of training of teachers could seriously influence the quality of teachers.
4. Many well educated, professional, or technical people emigrate to other countries these years. People in Hong Kong (and China) remaining in Hong Kong need teachers and training urgently.
5. Teachers nowadays, especially primary school teachers, need an improved environment, upgraded qualifications and human relations skills as the new generation becomes more and more difficult to handle.

Reason 3 - Training funds for that/those sector(s) available from other sources

1. I put lawyers last as they make so much money later, they can finance their studies by loans.
2. a) Training of banking personnel, and c) Training of insurance personnel are mainly for profit-making.
3. Banks and insurance companies can provide their own training since they are profit-making organizations.
4. Training for banking and insurance personnel should be done by the employers because they are making a profit.
5. For insurance personnel, most of the private companies already have their own training programmes and resources.

The Comparison of Graduate Studies Cost per Student and Government Budget Allocation: STOU Case

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ABSTRACT

The Total expenditure for the graduate studies in conventional system is twice as much as that in the open system like STOU. The government budget allocation to the graduates studies in the coventional system amounts to 80% of the University's budget for graduate studies while those allocation to STOU amounts to 3.9%. The conventional system graduated have to pay 39.7% of the total expenditure for the tuition and material, while STOU graduated student have to pay 97%. Thus, the government should allocate more funds to the graduate program of open system institution such as STOU to enable them to acquire better facilities and more educational resources, and to provide more higher educational opportunity for the student throughout the country.

INTRODUCTION

The Economy and society is rapidly changing in the late twentieth century. The new technology has been employed in many professional and administrative circles.As a result there has been a great demand for skilled workers. Consequently more and more people are trying to upgrade themselves personally and professionally through studying at the graduate levels.

Sukhothai Thammathirat Open University (STOU) has provided undergraduates studies in 10 Schools of studies by using the distance education system. The University has admitted undergraduates to its program on fifteen occasions to date, totalling approximately 800,000 students, 80 % of whom live in the provinces and 90 % of whom are already employed.

As a state university, STOU has all the honours and privileges of other universities. It was also found that the graduates are equivalent to those from the conventional system. Many graduates from STOU as well as conventional universities urge the University for a graduate program. Students can study during their free time without having to enter a traditional classroom and they don't have to give up their work or separate their work from their studies.

In response to the request of the public, STOU plans to extend the educational opportunities to graduate level in 1993. At the initial stage, because of the availability of resources and preparedness, i.e. the numbers of students and academic staff, etc., STOU will offer graduate study in the School of Education in 3 areas,Educational Administration, Curriculum Instruction and Educational Technology Communication.

The objectives of this paper are to examine the government budget allocation for the graduate studies, to find the University's expenditure for the graduate program and to investigate the direct and indirect expenditure of the graduate students.

RESPONSIBILITY OF GOVERNMENT AND STUDENT IN GRADUATE STUDIES

Since the graduate studies aims to develop national human resources for government and the private sector, as well as to upgrade personal and professional knowledge, the expenditure for graduate studies has fallen into 3 Categories to facilitate the teaching/learning process; the government, the University and the students.

In order to have a clearer picture, this paper also provides a comparative study between the conventional system and the open system.

GOVERNMENT BUDGET

Table 1 Enrolment, Budget and Cost per head of graduate Students in conventional system

Year	Enrolment	Budget (Million Bath)	Cost per head (Bath)
1977	8,195	1,468	30,506
1978	8,569	1,617	32,405
1979	9,541	1,876	34,996
1980	10,115	2,386	43,450

1981	11,365	2,658	47,413
1982	12,155	2,933	51,748
1983	13,613	3,229	56,917
1984	14,448	3,248	56,380
1985	15,489	2,926	49,999
1986	17,109	2,930	48,110
1987	18,530	2,897	47,448
1988	19,412	3,246	52,327
1989	21,044	3,688	56,209

Source : Education in Thailand : for TDRI

Generally, the Thai government allocates 80% of expenditures for graduate studies in the conventional system. In 1977 the expenditure for the conventional university from the government budget for the graduate studies was 1,468 million baht. In 1983 and 1989 it was increased to 3,229 and 3,688 million baht respectively. While the number of students increased from 8,195 in 1977 to 13,613 and 21,044 in 1983 and 1989 respectively. This means that the cost per head was 30,506 baht in 1977 and increased to 56,917 and 56,209 baht in 1983 and 1989 respectively (Table 1). Most of the expenditure were for salaries,equipment and remuneration.

STOU has just begun its graduate program in 1993. The government budget has allocated approximately 710,000 baht (Table 2) for salaries of 2 academic staff and 3 administrative staff or about 3.9% of the total expenditures. Since the number of STOU graduates students are 440 the cost per head from the government budget are only 1,613 baht.

INSTITUTION COST

Table 2 STOU Budget of Graduate Studies (2 year program)

Expenditure	Bath	%
1. Salary	910,000	4.9
2. Education Material	11,500,000	62.5
3. Administration Services	600,000	32.6
Total	18,410,000	100
Sources of Resource	**Bath**	**%**
1. Goverment Budget	710,000	3.9
2. Graduates Tuition	11,836,000	64.3
3. Other Sources	5,864,000	31.8
Total	18,410,000	100

Source : Cost Analysis for graduate program : STOU case

Since the conventional system get approximately 80% of expenditures for graduates studies, they had to pay about 20% for the total expenditures. (PLANNING DIVISION, STOU)

In addition to the budget drawn from the government, STOU uses its own revenue for the operation of graduate study; approximately 17,700,000 baht or 96% of the total expenditure. (item 2 + 3 in Table 2, Sources of Revenue)

It should be noted that the expenditures above represent only operating costs, such as study materials, remunerations, etc. Investment costs such as those for building programmes, equipment, and other infrastructure are not included.

PRIVATE COST

Table 3 Estimation of expenses for Tuition and Study graduates studies (2 yrs.program)

Bath

Expenditure	STOU Non-Thesis	Thesis	Conventional System
1. Registration form	100	100	50
2. Admission fees	200	200	150
3. Registration fees	1,000	1,000	200
4. University fees	2,000	2,000	1,200
5. Library fees	4,000	4,000	1,200
6. Tuition fees	40,000	40,000	12,000
7. Thesis fees	200	-	300
8. Comprehensive Examination	-	500	-
9. Education materials	5,000	8,000	-
10.Graduation	500	500	300
11.Intensive Training fees	1,000	1,000	-
12.Others	-	-	1,000
TOTAL	53,800 (2,069 $)	56,800 (2,184 $)	16,400 (630 $)

Sources : Cost Analysis for Graduate Program : STOU Case.

Personal cost to be borne by graduate students are as follows :

1) Expense for tuition and study materials As shown in Table 3. In the conventional system the graduate student must pay the University approximately 16,400 baht for a program of 2 years.

There are two programs in graduate studies in STOU, the nonthesis program and the thesis program. Both programs require 40 credits, the students for nonthesis program had to earn 7 courses or 35 credit and the independent study course for 5 credits. While the students for thesis program earn 5 courses or 25 credit and the thesis for 15 credits.

STOU graduate students pay 53,800 baht for a nonthesis program and 56,800 baht for thesis program which is about 3.3 times as much as the conventional system. Since these expenses are University revenue, STOU will get approximately 11 million baht per year or 64% of total graduate expenses.

2) Personal expenses.

Table 4 estimation of personal expenses for graduates studies*

		Bath
Type of expenditue	STOU	Conventional system
1. Accomodation	-	40,000
2. Short-term Accomodation	9,600	-
3. transportation cost for Seminar	4,800	4,500
4. Education Materials	2,000	6,000
5. Report and Thesis Expenses	15,000	13,000
6. Other (i.o.,examination, tution, communication etc.	20,000	10,000
TOTAL	51,400 (1,592 $)	73,500 (2,827 $)

note * not include food, clothes, social expenses

As shown in Table 4, in the conventional system the graduate student pays personal expenses approximately 73,500 baht per 2 years. These expenses include accommodations, books and other expenses related to the study program. The reason that the personal costs for graduate studies in conventional systems are high is because they pay for their own study material while students at STOU don't.

STOU graduates students had to pay approximately 51,400 baht for 2 years. Most of the expenses will be for accomodations and traveling expenses to the regional centers since STOU provides only 7 study centers within the region.

If we added 1) and 2) expenses together, the conventional graduate students pay approximately 89,900 baht per programs while STOU graduate students pay approximately 106,400 per program.

OPPORTUNITY COST

In the conventional systems if the graduates student are employed they didn't contribute to their job so, the society lost the benefits and they themselves didn't get promoted for yearly salaries which is approximately 12,000 baht per year. If they are unemployed they will lose their opportunity to work which is approximately 66,000 baht per year.

For STOU graduates students, there is no opportunity cost or foregone earnings. They are generally in full employment and contributing to the GNP of the country.

TOTAL EXPENDITURES

Table 5 Total Expenditure in Graduate Studies (2 years program)

Type of Expenditure	STOU		Conventional System	
	Bath	%	Baht	%
1.Government Budget	3,226	2.9	112,418	49.7
2.Expense fortuition and study material	53,800	49.7	16,400	7.2
3.Personal expenses	51,400	47.4	73,500	32.5
4.Opprtunity cost	-		24,000	10.6
TOTAL	108,426	100.0	226,318	100.0

If we consider the total expenditure for the two year graduate program in table 5. The conventional system is twice as much as STOU (2.08:1).The Conventional system graduates pay 89,900 baht or 39.7% of the total expenditure or 68% (average income per year approximately 5,500x24 = 132,000 baht) of Their average income and the government support them 113,418 baht or 49.7% of the total expenditure.

STOU graduates student had to pay 105,200 baht or 97% of the total expenditure or 79.7% of Their average income and the government support them only 3,226 baht or 2.9% of the total expenditure.

CONCLUSIONS

1 The government allocation to the graduate studies in the conventional system amounts to 80% of total expenditures or 56,206 baht per student while those allocation to STOU amonnts to 3.9% or 1,613 baht per student. (Table 1 and 2)

2 The conventional system had to use 20% of their own revenue, mostly from graduates tuition fees. STOU had to use 96.1% at their own revenue which comes mostly from graduates expenses approximately 64%. This means that STOU graduate student had to bear more of the cost themselves. (Table 1 and 2) Moreover STOU had to find about 31.8% from other sources of revenue for graduate studies.

3 The government's budget allocation for the private cost of graduate students in the conventional system was 49.7 while at STOU it was 2.9%. (Table 5)

4 Since the graduate studies will be research-oriented programs which require more interaction between the student and the instructor, the medium of instruction will therefore be different from the undergraduate programs. It is necessary to investigate the forms and methodology of educational systems which use new technology alongside with older technology such as communication technology, i.e., electronic mail, computer lines, telephone tutorial, etc. These will need more allocation of resources.

STOU cannot increase the tuition fees. It is already high compared to the conventional system and it would be unfair to the students since they already pay more than 79% of their income if they decide to study at STOU.

5 The government should allocate more funds to the graduate program of open universities such as STOU to facilitate more

resources for distance education. Students are spread throughout the country and they themselves are adult workers and do not forego their income. Moreover, it will provide everincreasing opportunities for those who have the capability and desire to study at the graduate level but lack the opportunity to study in the conventional system.

REFERENCES

Office of National Education Council. (1985), Total Investment Cost for Public and Private Universities, Bangkok.

Sukhothai Thammathirat Open University. (1991), Office of Academic Affairs. Cost Analiysis for Graduate Program : STOU Case.

Educational Investment for Distance Education: Unequalization that Needs to be Changed

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ABSTRACT

Higher education in Thailand can be divided into two systems the conventional system and the open system. The latter receives less subsidy from the state and has to collect more from its students. Graduates from both systems are indifferent in quality.Distance education system plays an important role in social and rural development and creates equality and justice in education. It also extends opportunity in education to people in rural areas. The open system spends less money in producing one graduate when compared with the closed system.

INTRODUCTION

Higher education management in Thailand can be divided into two systems : the conventional or restricted admission system and the open or non-restricted admission system. For the conventional system, of the method of teaching is face to face between students and instructors. in arranged classrooms. Class attendance by students registered in any subject in many universities is compulsory and class attendance below certain limit is considered to be illegible for taking final examination. For the open system, enrollments in each year are open to upper and lower secondary level graduates,occupational education graduates and any other persons who meet the requirements set out by the academic council of the universities. They are admitted without taking any entrance examination. Students do not have to attend classes. They study by themselves, instructed materials sent to them at home or any other places rather than in lecture alls or classrooms in the campus.

The closed and the open system

The conventional system was established in 1917 and absorbed not more than 10 percent of the total graduates from secondary schools in each year. A large portion of them applied to study at the two open universities--Ramkamhaeng University and Sukhothai Thammathirat Open University. Ramkamhaeng University is open only in admission but not in the method of instruction whereas Sukhothai Thammathirat Open University or STOU is really an open university both in admission and method of instruction. STOU has devised a distance teachning learning system in which educational media such as correspondence materials, radio and television programs and supplementary instruction at local study centers throughout the country were used. The open university system can accommodate more than 150,000 new students each year.

Quality of graduates

If it can be proved that graduates from the open system are equivalent in quality and the body of knowledge to those graduated from the conventional one, why resources allocated to both systems are extremely unequal? and in favor of the closed system. The open system enables those employed persons to study at higher level without leaving their jobs. They can use the knowledge they get to develop their careers, society and themselves with no interference of their regular jobs. Besides what they learn can be applied immediately to their daily work without having to wait until graduation. Thus the distance education brings out equality and justice in education since it opens opportunity to various persons to ento higher eduation more than it used to be.

Unjustice resource allocation.

If education in both systems can produce graduates with equal quality and investment in the closed system is higher than the open system, inequality in education investment is inevitable. Besides the distance eduation system plays an important role in social development especilly in rural areas. Consequently there remains the question whether or not more fund should be located by the government to the open university system.

The objectives of this paper are as follows : to point out that resource allocation by the government to both systems is quite different, students in the open system have to bear most of the expenses of the education system themselves, the budget allocation in various categories is quite inappropriate especilly in the case of Sukhothai Thammathirat Open University and it can be said that resource allocation to education by the state is rather injustice.

The Roles of Open University

Although the open learning system in Thailand was initiated only about 20 years ago it is able to reduce a lot of pressure of those secondary school graduates' needs to further their higher education. Besides, those already in labor market can further their study in the open universities without having to leave their daily jobs, their families and their present job positions. In 1977 Ramkhamhaeng University had a total registered students of 117,415. In 1980, Sukhothai Thammathirat Open University was emerged and became the second open university in the Thai educational history. Total registered students in the two universities by that time were increased to 396,687. Such figures were increased gradually in later years. and it is forecasted that there will be a total of over 500,000 registered students in 1993. Thus registration has increased about 5 times from the year the system started. As for the closed system there were altogether 82,292 registered students in lower undergraduate, undergraduate and graduate studies in 1977. Such figures were increased to 121,855 or 1.48 times in 1989. Thus, it is clear cut that the closed system in each year has certain limitation in accepting more students due to inadequacy of classrooms, teaching materials and instructors.

Extended opportunity in education

One important point that has to be considered about the role of the open university is to extend opportunity in education to rural area by open learning system Thus, people in rural areas have more opportunity to study in higher education. From the record, over 70% of students in the open system come from rural areas. These students when graduated are still working in the areas. There is very minimal problem of migration of educated people to the capital for job seeking. This is quite different for students in the closed system in which over 70% are in the capital and do not want to go out to work in up-country. Thus graduates from the closed system play less important roles in rural development when compared with graduates from the open system.

If we look at more details on students of the open system, it turns out that most of them lack the opportunity to study in the conventional or closed system and are also very poor. They have to first seek employment either in the government or private sectors and later on when they have chance, they apply to study in the open system. This is quite different for students in the closed system. Most of them are from middle or upper levels families.

Important roles in creating equality

Universities in the open system are, therefore, educational institutes that have more and more important roles in creating equality in education. Reasons are that they create equal opportunityin receiving educational services, they provide opportunity for life-long education, they distribute opportunity to people in rural areas, to poor people, to physical disorderly people and to people with less opportunity to study in the closed system without any discrimination and constraints.

Budget allocation by the government to higher education

The government has allocated continuously budget to higher education for universitites both in the conventional or closed and the open system. In 1977 budget allocated to all universities in the closed system was 1,747 million baht and was increased to 3,675 and 4,938 million baht respectively in 1982 and 1989. Such increase was about 2.3 times in 13 years or about 8.7% per year. About 74% of such budget goes to operational purposes whereas the remainder 26% is for investment.

As for universities in the open system, budget allocated by the government in 1977 was about 74 million baht and was increased to 188 and 274 million baht in 1982 and 1989 respectively thus the budget allocated was increased about 3.7 times during the 13 year period or about 12% per year. About 91% of the budget is for operation purpose and the remainder 9% is for investment.

Cost per head

If we look at the figures on cost per head for universities in the closed and open system, a great difference occurs according to each level i.e., such cost for graduate degree is higher than the bachelor or lower levels. If we consider only the bachelor degree levels in the closed system in 1977 it was 20,337 baht (for average withoutdifferentiate between faculties or schools of studies) and was increased to 34,499 and 37,473 baht in 1982 and 1989 respectively or an increase of about 5.1% per year. Cost per head in 1989 forstudents lower than Bachelor degree level was 28,105 baht and for Bachelor and Graduate levels in the closed system were 37,473 baht and56,209 baht per year respectively.

As for the cost per head in the open learning system it was 631 baht in 1977 and was decreased to 325 and 598 baht in 1982 and 1989 respectively.

Nevertheless, if we consider more closely on the operational and investment budget of every institution we can see some differences. Such budget includes both subsidies for the state and fund from outside the budget classified by institution and school of studies (at 1985 price) it turns out that the open system spends less money in producing one graduate when compared with the closed system in every subject. For example, a graduate in the social science and humanity from Sukhothai Thammathirat Open niversity spends only 6,223 bath before graduation whereas in other universitites such expense was at least twice that much.

A Comparison of Equal Investment by the state

If we consider the equality in budget allocation for Thai universities between the closed and the open system there still remains several points to be further considered. These are

Characters of learners

When consider characteristics of learners on the socio-economic status between those study in universities in the closed and open systems reveals that majority of learners in the open universities are from up-country. About 95% are working in their residential areas. They do not have opportunity to further their study in the closed system due to poorness, inability to pass entrance examination and do not want to separate from members of their family for quite a long period of time and want to develop themselves by utilizing their leisure time. Whereas majority of learners in the closed system have better economic and social status compared with general public. They are sons and daughters of merchants and government officials and are more than half of the total students. Whereas sons and daughters of agriculturists and the poor comprise only 1/10 of total students. Over 40% of these learners reside in the capital and upon graduation, they tend to seek jobs in the capital rather than going out to develop rural areas.

Cost burden of learners

Majority of learners in closed university system have better family status but they pay lower tuition fees and other educational equipments. They pay only 6.8% of total operational leaving the rest to be counterpaid by the state. Students in the closed university system pay very low tuition fee i.e., about 20-40 baht per credit.

For open university system, students have to pay more when compared with students in the closed system i.e., each credits costs about 66 baht (for students in the STOU) despite the fact that they are from families with lower income than those from the closed university system.

Social and Personal Rates of Return

If we consider the social and personal rates of return of the closed and open university systems,we find out that those graduated from the closed system has the social rate of return on the government sector equals to 8.28, on the state enterprise about 13.34 and on the private sector, 12.23. These rates are lower than those graduated from the open system. They are 11.18, 17.18 and 14.45 for respective sectors. Main reasons for these differences are due to the fact that the state pays more for the closed when compared with the open system.

As for the personal rate of return, graduates for the closed system in the government sector equals to 19.55, in the state interprise is about 27.34 and in the private sector reaches 25.85 but the same rates for those graduated from the open system are 15.20, 22.15 and 18.66 for respective sectors. Main reasons are that graduates from the open system have to pay more in education than those in the closed system.

Budget allocation by the state When we consider the budget allocation of the state to the closed and open systems we can see that the state has allocated higher budget to universities in the closed system than those in the open system. For example, in 1989 the budget allocated by the state to closed university system was 4,938 million baht. Students registered in that system and at that time were about 121,853. Budget allocated by the state to the open university system at the same year was 274 million baht. Students registered in that system were 457,707.

When the state allocates smaller budget to universities in the open system, they have to collect higher tuition fees from the students. For example, students of STOU have to pay about 9,000-10,000 baht per year for direct study expenses whereas those in the closed system have to pay only 2,500-4,000 baht per year for the same expenses.

STOU and Budget Allocation by the Government

Sukhothai Thammathirat Open University or STOU was created by Royal Charter in 1978 and instruction began in 1980 with a total of about 82,000 students registered in two schools--Educational Studies and Management Science. Given That this university is also a state-owned university, it receives a portion of subsidy from the government's budget and collect also a portion from students.

From the statistics of the government budget and the University revenue show that the state allocated, on an average, about 24.1% of the total annual budget (30.1% in 1993) and the remainding 75.5% collected from its students.

For the 1993 annual budget of the government allocated to STOU, it can be seen that the highest portion is salaries (about 73.06%) wages for permanent employees are about 5.47% of total annual government budget. Other miscellaneous expenses and materials are only about 9.87% of the budget allocated. Expenses on these categories are very important in producing printed materials and other audio visual media used for instruction and learning more efficiently. Therefore, STOU has to allocate budget for that purpose by collecting from its students. Total budget for miscellaneous expenses and meterial amount to 53.58% of STOU's revenue. Besides, 17.17% of its revenue is allocated for remuneration especially to tuitors and others. These figures indicate clearly that the state pushes forward to STOU for most of the expenses on education and consequently those poor people intended to study in the open system cannot achieve their objectives. Therefore they lose the chance to develop themselves and their career more effectively, inequality in education is thus still remained.

CONCLUSION AND POLICY RECOMMENDATION

The establishment of open university system by the state aimed to provide broader educational opportunities to working adults who reside in quite remote areas and lack the chance to study in the conventional system. The system is a life-long education and helps create equality in education. The expense per head of such system is very low when compared with that in the closed system and thus is more suitable for developing countries in which population are mostly less educated but want to develop themselves. Resources allocated by the state for such purpose is still very minimal and thus most of the expenses are shifted to poor learners who are poor and live in up-country. In order to solve these problems, the government should set up policy to bear more burden on educational investment by allocating more budget to open universities, especially, budget for miscellaneous expenses and materials.For other printed materials and references are provided in local libraries in every province and the public can borrow if they want. The state should allocate more budget to the university to compensate on expenses spent on services given to the public. This will truly lead to more equity in educational investment. At the same time, the state should encourage handicaps and imprisoned students or local young leaders to have more opportunity to further higher education in order to help themselves better and not to be burden to society in the future.

REFERENCE

Division of Educational Research Office of reational Education Council (1989), Expenses and Returns on Educational

Investment of Higher Education Institute, Bangkok. Planning Division, Sukhothai Thammathirat Open University, University

Revenue for 1980-1983. Office of National Education Concil.(1985), Total Invesment Cost for Public and Private University, Bangkok.

Sethapanich, Nongram "Inequity in Budget Allocation for Universities" Journal of National Education, 61-68.

Distance Education Planning and Workforce Needs in Australia

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Analysis of workforce needs and forward planning in higher education are inexact sciences, but with the futures of individuals, and society, and the prosperity and survival of higher education dependent upon such planning, it is essential to get it right. Distance education and open learning have recently assumed an unprecedented degree of prominence in Australian government policy directed towards implementing a mass higher education and training system. At the same time, the increased availability of information technologies is enabling major shifts in teaching strategies and encouraging more teaching in the workplace. These moves have occurred in a broader context of significant social and economic change in Australia, including the recession, major restructuring of industry, technological shifts, and reorganisation of the higher education system. The economic rationalist thrust of government policy is reshaping the nature of the welfare state and, with it, the role of education in meeting economic and social needs. The paper examines these issues and their implications for Australian distance education planning in coming years.

In common with many other nations, Australia has suffered badly in the current recession. Unemployment is at an all-time high, with approximately one million (10.75% of the total workforce) out of work. Australians are beginning to realise that widescale long-term unemployment is now endemic. The nature of work has changed radically in recent years, not only through belt-tightening in harsh economic times but, more importantly, through technological innovations and restructuring of industry to achieve higher productivity. The knowledge and skills required of workers are changing just as profoundly. In addition, Australia is moving rapidly from its traditional reliance on primary industry and manufacturing to an emphasis on tertiary and service industries with a concomitant change in education and training needs. Trade with Australia's Asian and Pacific neighbours is burgeoning and strongly encouraged by government. We are, at last, shifting our world view from a Eurocentric perspective to an identification of our cultural, social and economic place in the Asia/Pacific region.

These changes, of course, are not unique to Australia. It has become a truism to declare that we live in a global economy, relying on almost instant global communications. The consequences are profound not only for our national economies but also for our political and personal relationships, for our capacity to share and to compete, and for our teaching/learning practices. Distance education has an important role to play in that process because of its capacity to transcend time and distance, and to contribute directly to education and training in the workplace and across national boundaries.

The nature and practice of Australian higher and distance education are currently undergoing as profound a change as those caused by the creation of the printing press in the 15th Century, and the rise of science in the 19th Century. There are three factors at work here - higher education's transition from a province of the elite to a mass phenomenon; massive restructuring of the higher and distance education system, and extensive government intrusion into institutional affairs; and the impact on teaching/learning of the new information technologies.

Thanks to concerted efforts by governments, plus the recession, some 80% of Australian secondary students are now completing high school. With secondary schooling genuinely a mass phenomenon, the pressure on higher education to open its doors has become very heavy. Finn (1991) reports Australian higher education enrolments rose almost 30% in the 1980s, with a further 13% growth projected by the year 2000. In the same period, the proportion of national wealth devoted to education as a whole will have declined by 30%. The pressures on Australian universities to absorb the increased load with fewer resources have been enormous.

The decline in public funding levels, coupled with renewed pressure within industry for tailored education and training, has encouraged universities and employer groups to develop much closer ties. Competency-based and other approaches are being adopted to provide more 'relevant' education, but conventional teaching institutions are hampered in their response by the requirement for regular attendance on campus under rigid pacing and credit transfer rules. Distance education, of course, has a battery of techniques for overcoming such problems, and it is increasingly easy to convince employers and governments of this. Papers presented at the ASPESA Forum in July this year indicated the extent and variety of custom-designed courses, both credit and non-credit, now being offered by the major distance teaching universities to and in industry. There is a noticeable move away from arts and liberal studies curricula towards professional and vocational courses.

The second major factor in recent changes to Australian higher and distance education has been the massive restructuring engineered by the federal government (Dawkins 1988). The binary system of universities and colleges has gone (but a new university-technical college dichotomy is now emerging). Amalgamations have halved the total number of publicly-funded institutions to 35, and have left a number of universities with multiple, geographically dispersed campuses. The federal government, as the major funding source, has used its financial power to determine institutional profiles of courseds, the numbers and enrolment categories of students, and the level and areas of research effort to be supported. The principle of institutional autonomy which Australia inherited from the British tradition has been severely eroded.

As part of the restructure, eight distance education centres (DECs) were designated by government as the providers of university distance education and conduits for other universities wishing to offer particular distance courses. An Open Learning Agency was created in 1992 (King 1992). The intentions were to concentrate and rationalise effort and achieve economies of scale, and to encourage inter-institutional collaboration. In practice, the DEC concept has been quickly overtaken (NBEET 1992) as non-DECs have continued to teach at a distance and new institutional players have entered the field of multi-media course delivery.

Government intrusion on this scale and openness is new in Australian higher education. As I have argued elsewhere (Moran 1990; 1991), such intervention has two sides. On the one hand, increased government support for distance education has greatly helped to legitimate it as a high quality form of education. On the other hand, we risk being so gripped by state myopia about distance education as a tool of economic policy that we are unable to tend to the cultural and social needs of citizens as well as to their vocational aspirations.

The third major change factor is the impact of information technologies on course development, teaching and administration. The effects are visible, for example, in the growing collaboration among academic libraries to give on-line access to borrowers and rationalise collections; in the use of computer-managed learning to enable students to master concepts or techniques independently and at their own pace; and in the use of teleconferencing and computer-mediated communications to overcome the traditional problems with interaction and dialogue between teacher and learner. The academic electronic network (AARNet), established in the late 1980s to support research and scholarly interaction, has been an extraordinary success. A national electronic network will shortly be established to support open learning and distance education (Moran et al 1993). These technologies also facilitate the trend towards greater collaboration within higher and distance education, and lowering of institutional boundaries.

Two important trends emerging from of all these developments are the move towards convergence of distance and classroom-based education, and the growing internationalisation of distance education.

In the 1970s and early 1980s, demarcation lines were drawn between distance and conventional teaching as part of efforts to legitimate distance education and improve its status in the eyes of a sceptical education community. These lines have been blurring in Australia since the late 1980s (Campion & Kelly 1988). Rumble (1992) has commented on the vulnerability of single mode open universities in this new environment. The dual mode universities in Australia, however, are well placed to draw together their pedagogies on and off campus, to choose those which best suit students' circumstances, and the university's academic, financial and technological capabilities.

In my own university, for example, we have begun to rethink fundamentally our teaching mission. Deakin University now has five widely dispersed campuses and a new academic structure which commits us to teach on, across and off campus. We especially emphasise professional preparation and upgrading, and are increasingly teaching our students in their workplaces. Location, time and pacing of study are all under review. We will continue to rely strongly on both print and face to face teaching, but are combining them in new ways. Computer-based communications are rapidly becoming core components of course development and delivery. The term 'open campus', which Deakin coined in the 1970s, is acquiring new meaning. It is no easy or quick task, and the new direction will affect the role and power of academics as learning facilitators, the expectations and standards we set in relation to teacher/student interaction, and the processes of resource allocation.

The changes outlined above also have significance for efforts to 'internationalise' distance education - to teach beyond national boundaries, and to collaborate with others in the region to transfer knowledge and skills. There are both benefits and dangers in this trend (see Moran & Mugridge 1993). The benefits lie in prospects for sharing of costs and effort, improving quality by drawing on a wider pool of expertise, and increasing access to education. The most important long-term benefit is probably the improvements in cross-cultural understanding, empathy and friendship which are critical to effective international relations. The dangers are, however, real. The global economy has led to standardisation of products from washing powder to TV images and information services. Bates (1992) argues we are moving to a mass global culture in which experience, knowledge and skills are universal and generic. Culture and knowledge are commodified and available on the open market. Distance education is possibly the most commodified form of education, and there are real dangers that in buying and selling in the market place, and transferring knowledge and skills across societies, insufficient attention will be paid to the importance of preserving and enriching national and local cultures. The solution lies in 'products' which are custom-designed and adapted by the originators and 'buyer' in partnership.

Distance education is moving into a new phase in Australia in which it is integrated with conventional pedagogies and new information technologies to offer a very different face of education to students on campus, at work, and at home. The transition is far from smooth, and the financial and political constraints are severe, but the former distinctiveness of distance education in Australia no longer has cogency. The dual mode model is about to assume new meaning and strength.

REFERENCES

Bates, R. (1992 July), 'The emerging culture of educational administration and what we can do about it'. Paper presented to National Conference of Australian Council of Educational Administration.

Campion, M. & Kelly, M. (1988), 'Integration of external studies and campus-based education in Australian higher education: the myth and the promise'. *Distance Education* 9(2), 171-201.

Dawkins, J. (1988), *Higher Education: a Policy Statement* (White Paper). Canberra: AGPS.

Evans, T. & Nation D. (1993), 'Distance education, educational technology and open learning: converging futures and closer integration with conventional education'. In *Distance Education Futures*. Adelaide: ASPESA Biennial Forum.

Finn, B. (1991), *Young People's Participation in Postcompulsory Education and Training*. Canberra: Australian Education Council.

King, B. (1992), 'The Australian open learning initiative: new directions for higher education'. *ASPESA Papers* 12(Dec), 7-15.

Moran, L. (1990), 'Distance education as a tool of state policy'. In *Distance Education: Development and Access*. Caracas, Venezuela: International Council for Distance Education.

Moran, L. (1991), 'Legitimation of distance education: a social history of the Open Learning Institute of British Columbia'. PhD dissert., University of British Columbia.

Moran, L. & Mugridge, I. (eds), (1993), *Collaboration in Distance Education*. London: Routledge.

Moran, L., Hont, J., Calvert, J. & Bottomley, J. (1993), *Electronic Facilities Network to Support Open Learning*. Report commissioned by Dept. of Employment, Education and Training. Canberra: AGPS.

National Board of Employment, Education and Training (1992 Dec.), *Distance Education in Australia: Advice of NBEET and its Higher Education Council*. Canberra: Dept. of Employment, Education & Training.

Rumble, G. (1992), 'The competitive vulnerability of distance teaching universities'. *Open Learning* 7(2), 31-45.

Worked Based Training — its Challenges for Traditional Providers of Distance Education and Open Learning

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ABSTRACT

The 1990s have brought new challenges and reforms to education providers the world over. Increasingly supply and delivery has become a partnership between industry and providers. The call for competency based and work based training can only be met if such a partnership exists. In the paper, a case study of partnership between local government and the Open Polytechnic of New Zealand in the field of pest management is outlined, together with an analysis of the ramifications of this approach.

Under the partnership, local government requested pest management officer training to become learner orientated, competence/skill based and formally recognised. This was achieved through a process which analysed the skills to be learned to specific standards, defined what the learning system was to look like and contain, and how learners would be assessed. The Open Polytechnic designed an Assessor Training, Support and Quality Assurance Programme to allow selected local government staff to assess learners in the workplace on behalf of the Open Polytechnic.

The above approach to course development and delivery brings new challenges to traditional providers. Challenges are faced in the cost, staff, and quality arenas. Costs are transferred from traditional teaching to administration and co-ordination. Tutors have a new focus outside their traditional assessment role, and maintaining standards of assessment becomes a quality issue. These issues are explored in the paper, together with an analysis of the economics and cost benefits of the partnership model of distance education.

INTRODUCTION

The 1990s have brought new challenges and reforms to education providers the world over. Increasingly the supply and delivery of training has become a partnership between industry and providers. The call for competency based and work based training can operate only if such a partnership exists.

Dall'Alba and Sandberg (1992)(1) see the major purpose of the competency movement being to improve the competence of the workforce and to recognise existing competence (including that acquired outside formal educational institutions).

This move to workplace and competency based training has signalled many opportunities for open learning systems. Recognising this potential, the Open Polytechnic of New Zealand and the Local Government Association joined forces to undertake a pilot course embracing principles of open learning to meet the above educational aims.

As Dall'Alba and Sandberg point out, a key aspect to improving competence in the workforce is the extent to which competency based standards can be established and assessed. Designing curricula to meet specified competency standards raises cost, staff and quality issues.

BACKGROUND

Local Government within New Zealand is charged with the task of controlling high populations of possums, wallabies, rabbits, and various other pests that threaten the country's agricultural base. In 1991 the partners met to set up systematic training for people working in the management of these pest populations.

The training course had to be designed to equip students to carry out field control operations to contain or reduce veterbrate pest populations. Various means are used, from trapping to shooting or poisoning. The skills the pest management officer requires are associated with the above functions, together with the maintenance of equipment and effective communications and reporting.

The total workforce in pest management is small and widely dispersed throughout the country. The tightly defined role of pest managers and the low numbers involved made this an ideal field of training to trial a competency based approach. From the start the partners determined to

a) Cover the entire training requirements for people working in the pest management area, and

b) Monitor costs, approaches, and skills required in developing the training as a model for future competency based packages.

The Vision

Three stages were envisaged for the training

1. Stage One was to cover the training of pest management staff operating in the field.
2. Stage Two of the programme was to cover the training of supervisors working in pest management.
3. Stage Three was to cover project work, drawing on the skills learned in both the earlier stages.

Course Design

The course was designed to give students the opportunity to demonstrate competence in a cluster of work skills they carry out in field control operations. To this end the course was divided into distinct modules, each relating to a particular skill. Parkin 1992 (2)

Every module was designed to tell students:

- What they must achieve;
- How well they must achieve it;
- What they will need to achieve it;
- The additional resources available to them, and
- How they will be tested to show that they have achieved each learning objective.

The project sought to incorporate as many open learning principles as possible in its course material and in its delivery.

The Learners

The learners must be working in pest management. For entry to the course, each requires a valid firearm licence, driving licence, and a recognised first aid certificate. Generally students range in age 20 to 50 and are male. Most have little in the way of formal tertiary education or qualifications.

The Assessors

All learners can take skill tests when they wish by making an appointment with an assessor. All assessors are local government people. Under the industry/provider agreement all assessor costs and wages are met by their respective employers in local government.

The functions of assessors are to explain and clarify skill tests, and to give feedback and sign off a module when students have successfully achieved it.

Under this system therefore, one of the benefits of a competency based approach stated by Hodkinson (1992)(3) is achieved. The emphasis in vocational learning is moved out of the classroom or distance learning institution into the working environment.

The Challenges

With these ambitious principles, the project presented several challenges to both industry and provider. In reality the partners were seeking to produce material and learning opportunities to a uniform national standard throughout the country, with study and assessment opportunities on demand. In particular, the need for a system allowing students to take tests at any time, and to be retested until they reach the necessary standard, represented a very real challenge. Whilst systems could be devised, the main obstacle to overcome was how to ensure consistency and quality within reasonable budgets.

Quality

For quality to be maintained, a high level of validation would be necessary. Assessors would need to be skilled in the tasks they were assessing. It was therefore logical that local government employees working in the pest management sphere should be the assessors in the system rather than tutors. Thus a quality system required

1. Developing a nationwide network of assessors,
2. Appropriate training of assessors, and
3. Auditing of assessors

The question then arose: Who would provide these quality checks and for what cost?

Staff

The competency based and workplace assessment model changes not only the role of the traditional tutor but also the role of industry.

As Hodkinson (1992) points out, the teacher becomes a facilitator or mentor, helping learners and assessors to make sense of their own experiences. This has major implications for staff development. Harvard (cited in Hodkinson) claims that the skills of being a mentor may turn out to be much more complex than those of classroom teaching or distance learning teaching. Certainly the Open Polytechnic experience to date bears this out.

What skills did the tutor in the pest management field have to acquire?

Rather than being the primary contact for students, the tutor takes on the role of training the assessors in the generic skills of assessment. The tutor must also maintain overall quality. The tutor therefore needs to become skilled in

1. Needs analysis
2. Skill and task analysis

3. Student support and feedback
4. Assessor support and feedback.
5. Training the assessor
6. Controlling quality
7. Administering a network of assessors throughout the country.
8. Presenting and designing material to ensure that learners can be self directed.
9. Administering learning contracts between provider and learner, learner and assessor, and provider and industry.
10. Maintaining a register of progress of all students within the system and monitoring the success of the programme.

In this system the tutor becomes a "master assessor".

Without the above assessor training and quality assurance programmes in place, standards can not be guaranteed. Such a system cannot operate without an industry provider partnership. The willingness of industry to train the assessors and meet all assessor costs makes the model workable. Were industry not to take on this role, costs would be significantly higher.

Both industry and the Polytechnic are closely monitoring progress. However, the entire course has not yet been completed. Issues, such as the assessment gap, which Gonczi (1992)(4) sees as the difference between the amount of evidence which we can reasonably and reliably collect from performance, and the amount of evidence which is needed to make a safe inference of competence, have not yet been monitored. Similarly the effectiveness of the course and the validity and reliability of its assessment have not been judged to date.

Costs

As in any project, the partners face both setup and ongoing costs.

The costs of delivering assessor training were borne by The Open Polytechnic of New Zealand (TOPNZ) and the Local Government Association, on the general principle that each paid for their own people's costs. Thus TOPNZ covered costs in the preparation and delivery of the stage one course, the assessor skill and assessor certification validation visits, and course materials. The Local Government Association paid the travel and accommodation costs of its staff to attend needs analysis sessions, the assessors, skill, courses, and the costs of hiring course venues etc. Ongoing costs of updating records and material fall on TOPNZ.

Costs for the various stages are itemised below

Stage One

Set up Costs		*Costs $US*
1.	Conducting needs analysis	5,000
2.	Producing a self directed course for the students	45,000
3.	Conducting a four day assessor skill course	5,000
4.	Producing course materials and a workbook for assessors	15,000
5.	Day visits and travel to validate assessor certification	4,000
Total		74,000

Ongoing Costs (Annual Estimates)

1.	Updating materials	3,000
2.	Student records and administration	5,000
Total		8,000

Stage Two

In stage two (training for supervisors) greater challenges are faced. The training of supervisors has different requirements. The tasks to be measured are not those carried out by an individual performing a practical task, but by an individual interacting with others in day to day supervision. Two options for undertaking this type of assessment were costed.

One option is for supervisors and manager trainees to attend residential courses to learn and demonstrate their competence in a variety of management skills, including planning. Trainees will write work plans which they will implement at work. The course will need to be managed by the "master assessors" who will later visit the trainees to evaluate their success in applying their management skills on the job. This option would necessitate block courses in at least 8 regions throughout New Zealand. The total cost has been estimated at US$32,000.

An alternative is workplace assessment. Under this, costs would be spread over a longer period than under the block course option. Besides producing the assessment materials, the main costs of this option are assessor training and validation and video hire for each of the students to record their efforts in supervisory skills. The cost of this option is estimated at US$30,000.

Stage Three

At stage three of the course, all skills acquired in stage one and two will be assessed in a project. The chief costs here are the preparation of materials and the assessment of the projects. The estimate for preparing materials is US$15,000. Assessing projects is estimated at US$500 per student.

In summary, setup costs for the entire course will total US$121,000 and ongoing costs are likely to be US$12,000 per annum.

Benefits

Significant benefits arise for both parties.

Industry can be confident that any training received by their employees is directly related to their job, and performance will be enhanced.

A national standard of training is guaranteed. Students thus have portability of their skills.

Constant feedback between industry and provider ensures that providers can update course materials following the introduction of new techniques, chemicals, or methods.

Students can be tested in familiar work settings at a time to suit them. They have the flexibility to retake tests until they meet the desired standards. They do not have to wait for an annual exam which will test only knowledge rather than on the job skills.

Students who have already worked in the field can take tests with or without studying material, i.e. recognition of prior learning is built into the system through challenge assessment.

In summary, the course and approach guarantee a skilled workforce competent in the tasks they need to perform and ensure a continuing dialogue between provider and industry.

CONCLUSIONS

1. The success of such a partnership model relies on a clear and parallel vision by both parties. It requires solid planning, and refined role definition for each party. To ensure clarity, contracts should be drawn up between all parties.

2. Although the full course is not yet in place, we can confirm that "The practice of workplace reform is inextricably tied to the realisation that workplaces have to become "learning organisations", and that training is an integral part of "business as usual." Sissons (1992)(5). Traditional providers have a leading role to play in advice and promotion, andin ensuring quality in workplace based systems.

3. The economic and educational success of such an approach depends on the willingness of industry to absorb the costs of, and philosophically take on, the assessor role.

4. The approach radically changes the role of the traditional teacher or tutor. This role is essentially taken over by industry assessors who carry out their duties in the workplace. The tutor role is shifted to being monitor, mentor and master assessor responsible for maintaining quality standards.

Given the spirit of co-operation, enthusiasm and progress to date, the partners are confident of finding low cost, innovative solutions to the challenges that still lie ahead.

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REFERENCES

1. Dall'Alba, G and Sandberg, J (1993) "A Competency-based Approach to Education and Training: Will it Improve Competence?" HERDSA News, Vol. 15 No. 1 April 1993 pp 3-5.

2. Parkin, B A (1993) "Animal Pest Management Officer Training in New Zealand." Presentation to Secretary, General, Asian and Pacific Section of the International Union of Local Authorities. The Open Polytechnic of New Zealand, Wellington.

3. Hodkinson, P (1992) "Alternative Models of Competence in Vocational Education and Training" Journal for Higher Education, Vol. 16(2) Summer 1992 pp31-39.

4. Gonczi, A (1992) "An Integrated Competency Approach to Professional Education and Assessment". Research Paper, University of Technology, Sydney.

5. Sissons, L (1993) "New Initiatives in Workplace Reform." Address to IIR Conference, Rotorua. The Open Polytechnic of New Zealand, Wellington.

Dimensions of Value: Estimating the Benefits of Higher and Distance Education Programs

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ABSTRACT

The paper presents a method for estimating the benefits of higher education programs and services. This method recognizes the variable perspectives of principal stakeholders. The paper focusses on how to estimate benefits for one group of stakeholders i.e. for government decision makers. The use of the method is illustrated in the context of an Australian study to investigate the value of electronically delivered support services for open learning and distance education students.

INTRODUCTION

For over two decades, governments in both the developed and developing worlds have been investing heavily in distance education institutions, programs and services. Distance education has been one of a number of "policy instruments" intended to encourage economic growth and national development. In the developed world, the emergence of major university level distance education institutions and programs has been coincident with (a) the transformation of elite higher education systems into mass or semi-mass systems and (b) the emergence of life-long learning as an integral aspect of higher education provision. The development of mass higher education in North America, Europe and Australasia has been accompanied by (a) greater diversity of programs and institutions and increased heterogeneity of the student body, and (b) major changes in the method of university management and financing and, in particular, in the nature of university-state relations.

These developments are all interrelated for, as Shapiro has noted, "... mass higher education systems can only exist when there is differentiation not only between different types of institutions,... but also among different institutions which have the same generic name. Differentiation however has – whatever its advantages – its downsides. By virtually suggesting that the higher education system has something for everyone, the issue of quality control quickly emerges" (Shapiro, 1993, p16). Quality is indeed emerging as **the** issue of the 1990's in higher education (Barnett, 1992). Such questions are, we argue, intimately related to questions that held centre stage in the 1980's: namely those of efficiency, effectiveness and of equitable resource allocation.

EDUCATION-COSTS AND BENEFITS

Continued public support and government funding now increasingly require demonstration that the costs and benefits of higher and distance education programs justify the continued investment of scarce public resources. In short, educational institutions and programs are being asked to demonstrate that they contribute to the public good to a greater or equal degree than do other programs or services competing for the same public funds. They are also being asked to do so, and being judged on whether or not they have done so, in more explicitly economic terms than heretofore has been the case.

Marginson (1992, 1993) has persuasively documented the centrality of human capital theory and of economic rationalist perspectives in the development of higher education policy in Australia since the mid 1980's. He argues that these perspectives provide not only the basis for broad policy directions, particularly those collectively referred to as "the Dawkins Revolution", but also the methodological framework – the calculus – by which decisions of worth or value are made. This latter point is taken up by Jakupec and Marron (1993). The situation in the rest of the developed world is little different and institutions are increasingly judged on the basis of their production functions (Marginson, 1993, p3; OECD, 1990).

The response of the academic community to these developments has been a mixture of bewilderment and a sense of injustice conjoined with the development of a counter position, couched in the language of "liberal academism", that rejects "instrumentalism" and denies the possibility of applying economic tools to questions of academic output (Moodie, 1986, p1; Hunter, 1992; and Watts 1992). Understandably, these responses have had little impact on the policy debate.

A minority response argues that the appropriate response is not to label the economic approach as illegitimate but to demonstrate that it provides only a partial picture, one perspective on what is a very complex process, namely the transmission and creation of high level knowledge and skills. Barnett (1992), for example, discusses the peculiarities of education as a process and the implications of this for estimating quality and productivity. This is the position broadly taken by Marginson (1993) and eloquently by Collins in her review of the Finn Committee's report on post-compulsory education in Australia: "...(Finn) has a highly economistic brief. This is not necessarily harmful if it is a limitation which is clearly acknowledged....Any enquiry that takes an economic focus needs to recognize its own...perspectives and...limits (Collins, 1991, p18).

The argument here seems to be that the productive way forward is to engage the economic rationalists in their own terms but to argue for a broader decision-making calculus, one that explicitly rejects the universal claims of economics. This is the position taken in the context of distance education by Lentell: "And if distance educationalists feel disquieted, or dismayed, or even demoralized, (as many clearly do) by the political developments that have informed the changes in education, then the correct and practical response is not to call "foul" and make anachronistic reference to the rules of a by-gone era, but to get stuck in and to start determining the ground rules for the new game ourselves" (Lentell, 1993, p68). It is in this spirit of pursuing the common interests of institutions and the state as what the OECD refers to as "joint rather than conflictual ventures" that we offer what follows (OECD, 1987). The method we outline for estimating the value of services recognizes the needs of government bureaucrats and policy makers but also the need to recognize other legitimate, non-economic rationalist, perspectives.

Estimating the contribution of a service or program to the public good by estimating the public benefit it confers, and hence providing governments with the information required to justify the expenditure of public funds, is not an easy task. This is particularly the case for a non-market good such as a higher education program that possesses, in the terms of economics, both non-measurable and complex secondary benefits. Some of the difficulties are discussed by Marginson: "Some outputs of education are easily quantified .....there are no satisfactory methods [however] of computing the quality of teaching or research, the development of new knowledge, the social maturation of students or the learning of initiative or creativity...even the existing measures of formal student achievement cover only a small part of what is learned...it is difficult to identify the "value added" in education (Marginson, 1993, p7).

The use of formal cost-benefit analyses as specified in the Handbook of Cost-Benefit Analysis of the Department of Finance of the Commonwealth of Australia* is at best fraught with difficulties and arguably inappropriate to apply in the context of higher education. How then to estimate benefits in a way that takes cognizance of the complexity of educational practice and of legitimate competing perspectives but which also provides government decision makers with the structured, ordered information they require to justify the expenditure of public funds?

ESTIMATING BENEFITS AND COSTS

The method we outline was developed in the context of a study regarding the potential development of an Electronic Facilities Network to Enhance Tertiary Open Learning Services (Deakin University, 1993). The primary purpose of the network under consideration is to support the Open Learning Agency of Australia to attain its goals of providing all Australians with access to a flexible and high quality higher education. The study was also to take into consideration such other uses as can be made of the network that contribute to the public good. A central aspect of the study was the identification of services that contribute cost effectively to the enhancement of a student's educational experience or which in some other way contribute to the public good. Such estimates of benefits necessarily involve judgements regarding what is valued and hence require recognition of the competing but legitimate perspectives of the stakeholders (Nunan and Calvert, 1992)* The study thus explicitly recognized the claims of public policy, of students and of administrators and experts in determining what is of value and hence a public benefit.

The largest part of the remainder of this paper deals with one of these aspects, namely the manner in which public policy can provide estimates of the benefits of a program or service. We concentrate on this aspect of the question for two reasons: one, we believe that institutions routinely take into account faculty, student and administration views in making determinations of value and, two, that it is in providing government decision makers with assessments of value in a form that they can use that institutions need to make the most progress. An account of the method and its application is followed by a discussion of the need for decision makers to take into account multiple perspectives.

From the perspective of the government decision maker, determinations of the way in which a particular program or service contributes to the public good can be made in terms of the degree to which the program or service contributes to the attainment of a policy goal or the degree to which the program or service is consonant with the values underlying broad public policy goals. *Ceteris paribus*, the greater the consonance the greater the contribution to the public good.

In the case of our study, it was necessary to identify the value dimensions that informed Commonwealth higher education policy over the period during which the Open Learning Initiative was in gestation. Once identified, these dimensions could be used to assess potential services according to the degree to which they contributed to the public good from the perspective of the government decision maker. What follows is a discussion of the dimensions identified and a summary of their application within the context of the study.

Dimensions of higher education policy

The central document in any discussion of higher education policy in Australia over the last five years is *Higher Education: a policy statement* (Dawkins, 1988)*. The "Dawkins Report" proposed the creation of a higher education system better able to assist Australia achieve its social and economic goals. A Unified National System would encourage **growth** and **equity**; enhance **efficiency** through the merger of existing institutions into a smaller number of larger institutions; provide leadership and coordination in the provision of external studies through the creation of eight Distance Education Centres; and encourage **co-operation** and **flexibility** through enhanced links with the school system, the TAFE sector and industry, and through an enhanced emphasis on the provision of continuing and lifelong education.

Similar themes appear in a subsequent policy statement, *Higher Education: Quality and Diversity in the 1990's* (Baldwin, 1991)*. The themes of the Dawkins report are acknowledged and supplemented with an emphasis on **quality** and an enhanced stress on flexibility through **diversity.** There is also a significantly greater emphasis on the **use of technology** as a means of achieving quality and efficiency goals.

That these reports reflect essentially similar themes is not surprising. They did not emerge *de novo* but form part of an official and *quasi* official policy literature that has demonstrated a considerable degree of consistency since the mid 1980s. A report on efficiency and effectiveness predated the "Dawkins report" (Commonwealth Tertiary Education Commission, 1986)*. A report of the House of Representatives Standing Committee on Employment, Education and Training (1989)* discusses at length the role of technology and the need for cooperative use of resources and programs. A Senate Standing Committee report (1990)*, devotes considerable attention to the areas of quality, equity, efficiency and effectiveness and the need to develop strong continuing education programs.

The December, 1990, Higher Education Council publication, *Higher Education: The Challenges Ahead**, focusses on growth, diversity, quality and flexibility under the guise of articulation and credit transfer, co-operation with employers and alternative modes of delivery. The discussions on modes of delivery foreshadowed many of the ideas included in Baldwin's *Quality and Diversity* report, suggesting that the use of information and communication technology will transform the delivery of campus based programs and will, over time, render obsolete the distinction between distance education and other delivery methods. This position has been formally passed on to the Commonwealth in advice that advocates abolition of the formal distinction between external and internal provision. (Higher Education Council,1992a)*.

Concern with equity of access to higher education is reflected in reports commissioned by the Commonwealth on *Improving Access of Disadvantaged Youth to Higher Education* (Abbott-Chapman *et al,* 1991)* and in the tele-cottages initiative and Rural Access Program of the Department of Primary Industries and Energy. An objective of the study that preceded the establishment of the tele-cottage program was "to assess the potential of tele-cottages with particular reference to ameliorating the educational, employment and income disadvantages experienced by rural Australians (Horner and Reeve, 1991, p2)*.

Flexibility and cooperation are central themes in two National Board of Employment, Education and Training publications on credit transfer and open learning (1989; 1990)*. Interest in credit transfer as a means of increasiug system flexibility is further reflected in a funded investigation of TAFE-university transfer (Lewis, 1991)* and in the establishment of a credit transfer pilot project under the aegis of the Australian Vice Chancellors Committee. The establishment of the Open Learning Technology Corporation further testifies to a desire for increased multi-sectoral co-operation. So do many of the unpublished reports commissioned under the National Educational Communications Framework initiative.

Quality has emerged as a central concern. The Commonwealth commisioned a trial evaluation study of performance indicators (Linke *et al,* 1991)* and an investigation of quality and standards in distance education (Nunan and Calvert, 1992). The national approach to quality in higher education is detailed in two recent Higher Education Council reports (1992b; 1992c)*.

The potential of technology to improve the quality and efficiency of the teaching function in all programs, internal and external, is investigated in the report of Edith Cowan University and the University of Southern Queensland (1992)* to the Australian Education Council Working Party on a National Education Communications Framework. A more focussed investigation of the issues is found in a National Board of Employment, Education and Training commissioned report on the use and potential of distance education materials and methods (1992)*.

The Open Learning Agency was originated in this policy context. Its creation reflects Commonwealth goals of accommodating growth, increasing access , striving for equity, using technology to increase efficiency and effectiveness, increasing flexibility and cooperation in the tertiary system and using the teaching methods of open learning as demonstrations of the art of the possible for on-campus providers.

We will return to these policy dimensions immediately following the next section in which we discuss the services and means of delivery identified for possible delivery over an electronic facilities network.

Services and means of delivery

Discussions with students, administrators and others ,along with a review of the literature, allowed us to identify three groups of possible services. These were:

- services offered by means of computer communications including on-line library catalogue access, library book ordering and full text retrieval, electronic mail for academic and administrative purposes, computer conferencing and the submission of assignments through file transfer;
- audio and video group tele-tutorials and private tutorial assistance using the telephone; and
- interactive voice response and voice mail based services providing both administrative and academic support.

Stakeholder estimates of service benefits

Information was formally collected from students and administrators regarding the value of these services and we will reference their responses after our discussion of the manner in which these potential services contribute to the public good as expressed in public policy terms. This, as discussed, involves evaluating each potential service against the value dimensions underlying public policy. The table below summarizes the results of doing so for the services identified above.

Public Policy Value Dimension

Service Group	Growth	Equity	Efficiency	Cooperation	Flexibility	Diversity	Technology	Quality
E-Mail			X	X	X		X	X
Conferencing			X	X	X		X	X
Library access			X	X	X		X	X
IVR systems			X		X		X	
Audio tutorials		X					X	X
Video tutorials				X			X	X
Tutor phone access		X						X

Table one: Public good estimates of service groups

In public policy terms the most valued services then are electronic mail, computer conferencing and on-line library access with other possible services contributing less to the public good as this is reflected in public policy. How do these judgements compare with those of students and administrators?

A survey of 1000 open learning and distance education students provided the data needed to estimate student judgements regarding the value of potential services. The key to the approach was to solicit from students their views on (a) whether a potential service was useful i.e. of value, (b) whether or not they would be prepared to pay to receive the service, and (c) if so, how much they would be prepared to pay. A summary of the results indicates the following:

Service Group	Mean percentage of respondents who will pay	Mean percentage respondents who indicate useful but will not pay	Combined percentage
E-Mail	37.5	47.3	84.8
Conferencing	35.7	46.0	81.7
Library access	42.0	47.0	89.0
IVR systems	23.2	53.3	76.5
Audio tutorials	44.0	42.5	86.5
Video tutorials	30.0	41.5	71.5
Tutor phone access	49.0	45.0	94.0

Table two: Student estimates of service value

In terms of the amount they are willing to pay, students indicate that computer based services are most highly valued, with audio based services a close second and video based services third. In all cases students appeared to be willing to pay enough to allow the delivery, on a cost recovery basis, of a range of highly valued services.

As was the case from a public policy perspective, electronic mail, computer conferencing and on-line library access rank highly. Telephone-based services providing group and individual access to tutorial services; however, are ranked number one and two in preference by students. This represents a significant difference from the perspective of public policy and one that policy makers need to be aware of in a situation in which public funds are likely to be provided on a start up basis only, with a user pay regime being expected to be in place within a few years of start up. A worst possible scenario is one in which the government is prepared to invest in a network that students will not support on an on-going basis. The value of multiple perspectives is clear in this instance.

"Telephone interviews ...with professionals (administrators and experts)...confirmed the findings of the student survey...regarding which services are of value..."(Deakin University, 1993, p29). Faculty views solicited by Nunan and Calvert (1992) suggest that the views of this group are broadly in agreement with those of students and professionals, namely that student-faculty contact, both in groups and individually, is of central concern.

CONCLUSIONS

We have presented a method for estimating the benefits of higher education programs and services. We explicitly recognize that estimates of benefits involve judgements as to what is of value and hence the necessity to recognize legitimate competing perspectives.

We focus on the question of making estimates of benefits from the perspective of the public policy maker as we believe this is an area that has been neglected in both the educational literature and in practice. We illustrate the use of the method through reference to a study conducted on the value of various electronically delivered support services for distance education and open learning students.

We conclude that the method is a useful one for identifying the differences in the perspectives of the various stakeholders and suggest that both governmental and institutional decision makers need both to be cognizant of and take these into account when coming to decisions regarding the implementation of new programs and services.

* Space limitations require the separate distribition of references to primary sources. These are available on request from the authors.

REFERENCES

Barnett,R. (1992), *Improving higher education. Total quality care*, Milton Keynes, Society for Research into Higher Education and Open University Press.

Collins,C. (1991), 'Effective control of postcompulsory education', *paper to the conference 'Educating the clever country', Royal Australian Institute of Public Administration and Australian College of Education*, Canberra, 23 July.

Deakin University (1993), *Electronic facilities network to enhance tertiary open learning services*, Geelong.

Hunter,I. (1992), 'Auditing the critique department: on the humanist understanding of bureaucracy', in *Rationalizing education: Melbourne studies in education*, 15-34, Melbourne, LaTrobe University Press.

Jakupec,V. and Marron,K. (1993) 'Crises in Australian distance education: From Dawkin's "Growth with equity" to Baldwin's "Quality in diversity". *Higher Education Review*, forthcoming.

Lentell,H. (1993), 'Review of "Quality and standards in distance education"', *Open Learning, 8(2)*, 68-69.

Marginson,S (1992), 'Education as a branch of economics: the universal claims of economic rationalism', in *Rationalizing education; Melbourne studies in education*, 1-14, Melbourne, LaTrobe University Press.

Marginson,S. (1993), *Education and public policy in Australia*, Melbourne, Cambridge University Press.

Moodie,G. (1986), *Standards and criteria in higher education*, Milton Keynes, Society for Research into Higher Education and Open University Press.

Organization for Economic Co-operation and Development (1987), *Universities under scrutiny*, Paris, OECD.

Organization for Economic Co-operation and Development (1990), *Financing higher education*, Paris, OECD.

Shapiro,B. (1993), 'Resource allocation the key to mass higher education', *The Australian, June 23* , 16.

Watts,R. (1992), 'The politics of discourse: Academic responses to the Dawkin's reform of higher education 1945-1991', in *Rationalizing education; Melbourne studies in education*, 35-55 Melbourne, LaTrobe University Press.

The Most Economical University in Japan

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ABSTRACT

It seems that Japanese tax payers are getting great value out of subsidizing eighty per cent of the annual budget of one hundred million US dollars of the the University of the Air.Because first and foremost forty–five thousand students all over Japan are taking courses at the University.

Also the University of the Air is having an indirect impact on instruction in conventional universities. Because their students can watch and listen to its programs. They can judge the quality of teaching of their own professors by comparing it with that of the University of the Air. This constitutes a silent pressure for the faculties of conventional universities to improve their teaching. If students can watch the programs,so can professors. And many are just doing that. Particularly young faculty members fresh from graduate schools are keen viewers and listeners. In short, the University of the Air is setting a standard of teaching against which all college level education can be judged.

The size of this unregistered " student" body is beyond precise calculation. But one indication of its size is the volume of sales of textbooks of the University of the Air. Already in total more than one million copies have been sold to the general public through commercial outlets. Besides, many textbooks originally published by the University of the Air are later picked up and published by other publishers, usually with slight modifications after the corresponding television and radio programs have been broadcast. This contributes greatly to the reduction of publishing costs of such books. Because commercial publishers need pick up only ones that have already proved successful in the market. Thus, they can avoid the risk of publishing textbooks of an unknown quantity. In other words, the University of the Air is playing the role of a guinea pig for them. Thus,Japanese tax payers are subsidizing the publishers of college textbooks through their support of the University of the Air. Finally, forty–six universities and junior colleges have entered into agreements with the University of the Air so that their students can earn credits by taking courses at the University of the Air. By choosing to do so, these institutions can offer many more courses than otherwise could be the case at a lower cost. Thus, the University of the Air is helping small colleges and universities economize their operating costs while allowing them to maintain a wide variety of course offerings.

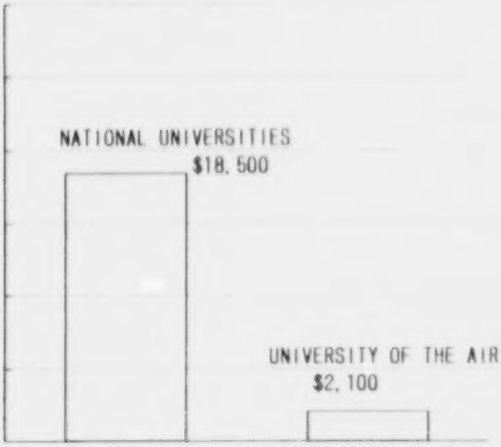
The University of the Air is not operating on the assumption that its impact on the Japanese educational scene could be adequately measured. In other words it is not in the business of dead body counting in education. All the available evidence, however, suggests that yen spent on the University of the Air is a good investment. The Japanese tax payers seem to agree with this assessment by enrolling in ever larger numbers and allocating an ever bigger budget to it.

Statistically Speaking

The University of the Air with its annual budget of about one hundred million American dollars is by no means the cheapest educational institution in Japan. It does not pay its way. The fees from tuitions cover only slightly more than twenty per cent of its annual budget. The rest approximately eighty million dollars the government subsidizes. How can one justify this vast expenditure particularly in times of recession? Practically everybody in Japan is tightening their belts and the government is suffering from declining revenue.

Well,one way to go about it is to look at the statistics? Per capita cost of educating a student is far cheaper at the University of the Air than at Japanese national universities. According to my own calculations, per capita annual cost of educating a student at national universities is about $18,500 of which the government subsidizes $13,400. That is about seventy-two per cent. While the average annual cost of educating a student at the University of the Air is only $ 2,100 of which $ 1,700 the government subsidizes in one way or another. That is eighty-one per cent of the cost. Therefore, a University of the Air student costs only sightly more than ten per cent of a national university student. Looked at this way, the University of the Air is far from costly.

ANNUAL PER CAPITA COST OF EDUCATION



GAKKOU KIHON CHOUSA (1992)

But of course these calculations do not tell the whole story. It is said that there are two kinds of lies,downright lies and statistics. The average cost of educating a student at the University of the Air can not be simply compared with that of a national university student. Because,the University of the Air has only one department, that of Liberal Arts,which relatively speaking is not expensive,compared with such costly departments as Engineering and Science. Not to mention the insatiable appetite for funding of medical departments! Thus simply comparing the average cost is a little misleading. There is no such a person as an average student in reality. He or she only exists in the abstract. Yet the fact remains that the University of the Air is cost efficient.

BEYOND MEASUREMENT

The contribution of the University of the Air goes beyond educating its own students. It is having an indirect impact on the quality of education in conventional universities, too. Because their students can, and many do watch and listen to its programs. They can judge the quality of teaching of their own professors by comparing it with that of the University of the Air. This constitutes a silent pressure for the faculties to improve their teaching. If students can watch the programs, so can professors. And many are doing so. Particularly young faculty members fresh from graduate school are keen viewers and listeners. But many well established academics are among its viewers. This is not without its problems. Because peer pressure from other academics sometimes produces programs too difficult for beginners. Academic presentation gets confused with the educational program. That is to say, unconsciously the programs are aimed at an audience of other academics rather than the uninitiated students.

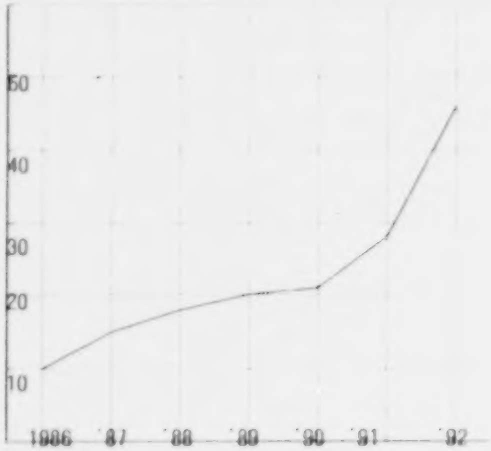
Another problem is that most of the faculty of the University of the Air are former professors of some of the best universities in Japan. And most of the visiting professors are teaching at them as well. A problem occurs because they have little experience in teaching other than the brightest students. The majority of the students of the University of the Air are, although highly motivated,not necessarily highflyers. The University of the Air does not screen them by the legendary rigour of the entrance examination hell. The door to the University is open to anybody and everybody who wants to study. This can sometimes lead to a mismatch between the level of the programs and that of its student body. Most of the faculty of the University of the Air are simply not experienced with teaching less than the " best and the brightest." Despite this, one could argue that the University of the Air is setting the standard of teaching against which all college level education can be judged.

The size of the unregistered " student" body is beyond precise calculation. But one indication of its size is the volume of sales of textbooks of the University of the Air. Already in total close to one and quarter million copies have been sold to the general public through commercial outlets. Many professors of conventional universities are using them as a set textbooks. Also tape-recorded and video-recorded programs of the University of the Air have been widely distributed among colleges and universities. Last year more than three hundred schools of higher education received this material on close to two hundred courses. Their precise utilization is not known. But I personally know that some faculties at conventional universities are using them as supplementary material in class. Audio-visual material seems to be very effective in class in introducing the subject matter. And I suspect many professors are personally taping and video-recording our programs for their class room use. And like our textbooks, some of our recorded programs are being sold through commercial channels. On this issue of sales,however, we encounter problems of intellectual property rights. Because some of our programs do use news footage paid for at an educational use rate, they therefore cannot by law be re-sold. For example, one program on international politics used CNN news footage extensively. Even at an educational use rate the fees came over twenty thousand dollars. Fees for commercial use are virtually prohibitive. Even with unlimited money, clearing copy rights for film of many footage is very time-consuming. Programs on the market tend therefore to be those that do not have such problems. Despite this, commercial sale is important not only because it is a source of revenue, but also because one is almost certain that those who pay for it will also study it.

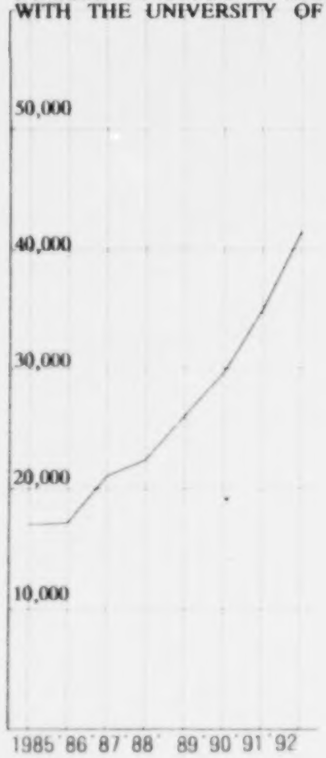
The University of the Air is not only helping students and faculties of conventional universities but also publishers of college textbooks. Many textbooks originally published by the University of the Air are later picked up and published by other publishers, usually with slight modifications after the corresponding television and radio programs have been broadcast. This contributes greatly to the reduction of publishing costs of such books. Because commercial publishers need pick up only ones that have already proved successful in the market. Most notable among them is the textbook on Japanese politics. The Tokyo University Press will translate and publish its English version. It will be marketed beyond national boundaries. By examining the quality and sales of the textbooks of the University of the Air, commercial publishers can avoid the risk of publishing textbooks of an unknown quantity. In other words, the University of the Air is playing the role of a guinea pig for them. Therefore, indirectly Japanese tax payers are subsidizing the publishers of college textbooks through their support of the University of the Air .

Finally forty-six universities and junior colleges have entered into agreements with the University of the Air so that their students can earn credits by taking courses with us. By choosing to do so, these institutions can offer many more courses than otherwise would be the case at a lower cost. Out of forty-six institutions, most of them are private schools in rural areas. Only two are national universities. Thus, the University of the Air is helping small colleges and universities economize their operating costs while allowing them to maintain a wide variety of courses.

NUMBER OF UNIVERSITIES AND COLLEGES WITH A CREDIT EXCHANGE AGREEMENT WITH THE UNIVERSITY OF THE AIR



NUMBER OF STUDENTS ENROLLED WITH THE UNIVERSITY OF THE AIR



The University of the Air is not operating on the assumption that its impact on the Japanese educational scene can be measured merely in money terms. All the available evidence, however, suggests that yen spent on the University of the Air is a good investment. The Japanese tax payers seem to agree with this assessment by enrolling in ever larger number and allocating an ever bigger budget.

Sharing of Global Experience for Cost-effectiveness in Distance Education

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INTRODUCTION

Distance Education is an integral part of the existing Indian higher education system. It is not merely to absorb the overflow of enrolment in the colleges and universities but also to serve people's growing demand for more education. This is an educational reform with a new delivery system to offer life long learning opportunities. Any international conference of open universities offers evidence to show that this mode has gained credibility and is now being accepted as a more viable method for extending the reach and relevance of education through its innovations and technology to desiring students worldwide. Looking to its pervasive impact and flexibility it can be stated that the future challenge in higher education can be more suitably met by the Distance Education mode in its different shapes. While more and more people are opting for its benefits it looks certain that this mode has greater appeal and interest. It is now getting more relevant to the emerging social urge linked to the realisation of the need to extend the reach of higher education to all irrespective of class, age and place of living. It is this aim which makes the entire system more pertinent because it will ultimately help transform human beings in their orientation towards a new way of thinking and working for development and for better quality of life.

Education is a tool with which alone the society can fulfil its commitment to development and change. This has acquired greater meaning in democratic polities. India offers a unique socio-cultural diversity. A vast section of the population continues to be educationally backward and economically poor. As a democracy of teeming millions it too has its social dream of a bright future linked to economic self-reliance through access to higher education. Self-reliance is a feature which has close relationship with appropriate educational inputs which have to be compatible with the best in the world. If this future dream is to be realised, it is necessary to explore the possibility of addressing such of the socially and economically handicapped youth as have been deprived of a chance to get higher education through the conventional mode. So it can be seen that the desired change can be brought about only through dynamising the relationship between education and development. The premises is clear that development is the function of education and that now the desired extension of education with the available limited means is possible only through Distance Education. Since change is a consciously felt social need now, this can be brought about only through education. So Distance Education directed towards bringing about the desired change is the main thrust to be realised now. This is possible only through optimum use of resources such as material, money, men, time and equipment.

Development, distance mode and cost factor

In the process of education a substantial amount of scarce resources is involved. There is a clear consensus that educational reform is necessary but there is hardly any agreement over the extent of responsibility of any government for the costs involved. Though it is difficult to calculate the total resource cost in the process of education because education does not provide a complete view of the magnitude of investment in education with its direct and indirect socio-economic gains, yet the governments have a stake in investment in education and it is, therefore, desirable that the cost of higher education both to the individual and the society be calculated even when education is not to be subjected to the full rigour of market competition and optimal use of resources. It is only a survey of fixed inputs which could be taken into account to get an idea of the cost of education in a particular mode. In this context, the State's share in teachers' salaries investment in infrastructure, expenditure on books and equipment, money spent on various co-curricular activities of the students and for the enhancement of the professional competence of the teachers, under State, Central, UGC and other schemes are generally reckoned. But because of the diversity in socio-political structures, managements and financial ipatterns even this is not comprehensively available in respect of any mode or institution.

As an integral part of the agenda of any developing country education is a condition of development which broadly means qualitative change or improvement in prospects and quality of life. In India, the rate of change has been slow because the higher education system has not been able to cope with the vast challenge despite its network of over 200 universities, 7100 colleges and other institutions of higher education. This slow moving cavalcade of higher education has offered a chance to Distance Education to make full use of its innovative strategies and flexible formulations of five open universities and forty other odd institutions offering correspondence courses to address the more spatially scattered, neglected and the less fortunate desirous students. Dynamics of Distance Education is being progressively linked to newer learning techniques that have been designed for the students themselves and the new vision it perpetuates. Its mode of operation, the institutional centres with an exponential increase in the number of courses, offer a kind of a new network to meet divergent expectations. Traditional academic planning and management approaches have taken a new course to fulfil the context of change.

While our society is on the move and improvement of knowledge and skills is sought by every one the issue of supporting Distance Education mode to promote it as a parallel or an alternative to the existing higher education system, is prominent as it alone has the potentiality to be viable, cost effective and selfsustaining through sharing of common services and academic packages in core courses. Contrary to this, the vast collegiate sector and the universities set up is largely financed by the government, as a social responsibility function. There are no private universities or institutions as such recognized and accredited by the Univeristy Grants Commission or Indira Gandhi National Open University(IGNOU) to offer education through distance mode. So extension of higher education through this mode is the sole liability of the government. There has not been much of an international exchange support except some recently received by IGNOU from Commonwealth of learning and Japan for updating its electronic media facilities and for enrichment of its academic packages. Internal finances and consultancy inputs if any, in spite of being available to some extent, are not sufficient to sustain this mode and to promote it as a viable initiative against the more accepted and established conventional mode.

In the obtaining scenario it emerges that the Distance Education mode in India is fast taking the shape of a national system to offer access to higher education to the vast overflow of desirous students in the face of its demographic pressure. It is also clear that it has extended its reach to every nook and corner of the country and is penetrating the unaddressed social and regional segments. The state support in this exercise varies from institution to institution. The internal financial resources also depend upon enrolment and mostly it is the state support which has sustained the system so far. Now that the investment in this mode has to be significantly high particularly when the communication technology benefits are required to be correlated to its delivery system, it is necessary to realise that the scope of economic liberalisation and free enterprise be also extended to this mode. This proposition is replete with many academic and non-academic apprehensions. In a conventional directorate of Correspondence Courses, the university level accredited courses are reproduced and despatched to its students all over the country without any consideration for the quality and available brain time of the recipient students. The course material is generally a set printed lessons in which the teachers get into the print media instead of offering a class room face to face regular lecture. In institutions where there are large enrolments, postal supply of printed packages is a costeffective method because this does not require any regular expenditure on the salaries of wholetime teachers, infrastructure, library or any other thing of the kind. All that is required is a timebound production and despatch of printed lessons to the students and thereafter receipt and evaluation of assignments by a few core and part-time employed teachers. To be more cost effective in this practice of despatch of individually printed lessons or course material offered by different institutions all over, larger academic initiative and resources require to be pooled to offer improved packages of international quality for the benefit of students pursuing identical courses to earn worldwide credibility and recognition. Exposure to academic material of acknowledged international merit and relevance would enhance and enrich the level of competence of students. In certain core subjects such as common communication skills, social sciences, humanities and even in some professional courses pooling of global efforts to bring about the best material on selected topics would usher into an era of qualitative excellence. There is an urgent need to establish global understanding and communication to ensure exchange of best quality material on foundation courses on common subjects. This is an exercise which can extend the reach of Distance Education worldwide and allow the benefits of latest innovations in the field of education reach the unreached and unaddressed students and areas.

Cost sharing for common facilities

Distance Education is generally stated to be cost-effective as on several counts it has better relationship between the input with the output as against the conventional higher education system in colleges and universities which envisages heavier inputs all through. This has been attributed to simpler postal supplies of academic packages of conventional courses without any extra investment on student activities, regular employment of teachers and setting up of much needed infrastructure. This has also been due to lack of use and availability of audio-visual technology, satellite communication and other recent advances in communication networking. If these were to be explored or made use of, the cost would be much higher though with greater benefits to our students. The use of modern communication technology cannot be afforded as an isolated initiative. It has to be a pooled effort to share cost inputs. The launching of an exclusive educational satellite in the Asia. Pacific Region to improve communication facilities for the intending learners cannot be the sole investment of any one country. In order to be costeffective it has to be a joint enterprise the benefits of which can be collaterally available to all the collaborating partners. Moreover the setting up of hi-tech production units for the course material is a highly sophisticated and investment intensive enterprise. Not each of the Universities in any country can afford to set up such centres of its own for its own exclusive use. The pooling of initiative and resources is an economic compulsion because, for the production of all kinds of regionally relevant courses also, jointly established audio visual resource, production and research centres would be an economically viable proposition.

So the pooling of resources and setting up of hi-tech centres for preparation and production of course material has to be a common feature of the system so as to make it an economical enterprise. It is necessary also for the reason that in such kind of a pool exchange of global experience would be possible. This can even attract foreign initiative to augment national capabilities. No country can afford to offer uniform facilities of high standard throughout its centres or open universities. So it is imperative that these facilities have to be generated through a corporate effort in a costeffective manner and depend upon sharing of experience so as to make the system more practical and efficacious despite its diversities and application uses. Sharing of global experience, through periodic exchange of information and experimentation for improving the system and making it more practical and useful, can offer transnational advantages. This would signify international cooperation for a multi-dimensional participation in extending the reach of higher education worldwide so as to meet the challenge of time and social demand.

Suggested multinational approach and innovations apart, the New Education Policy on Education-Programme of Action, 1986 has already realised that Distance Education augments opportunities for higher education, ensures access, is cost-effective and promotes flexibility and innovative system of education. IGNOU study about the cost analysis of Student Support Services has established its cost efficiency. In doing so it has taken into consideration these services provided through a large number of study centres. Per capita investment/costs on development of campuses, capital expenditure, production of course material, audio/video programmes, average cost of counselling, evaluation of assignments etc., have been taken into account. It has been inferred that with the increase in enrolment in the subsequent years, under its various existing programmes, the unit cost of student support services will be reduced further. Needless to mention that there are no physical constraints on enrolment as we have in our colleges and universities. There can not be any difference of opinion on the subject that with the growth of this system the costs will also come down. While the number of course material packages be increased there would not be any spiraling increase of investment in fixed assets or capital expenditure. Now that this issue has attracted sufficient attention of the educational planners it is still a critical area of study and investigation because of vast cost variations linked to competitive market forces and various other factors. Even such factors as tuition fees, allocation of resources, teachers salaries are under strict scrutiny in the case of conventional education. Both individuals and society have a stake in educational investment. It is, therefore, desirable that the cost benefits of education be also calculated to an extent and for this study of cost inputs is vital. Education offers social benefits. Social subsidies may be used to spur demand for higher education. But the formal education cannot offer to absorb the social rush beyond a particular degree. Therefore, expansion of higher education in its conventional shape is a major limiting factor. The prevailing enrolment expansion @ 4.8% cannot get absorbed without additional inputs in the conventional system. The costs of building, new infrastructure and seeking finances for the same is something which the state subsidy can illadjust.

Looking to the state inability to invest any further in setting up institutions of higher education with new infrastructure and employment of teachers despite marginal support from auxiliary enterprises, voluntary social institutions and educationally motivated trusts and societies, it is not possible to create avenues to accommodate any future rush of enrolment. The end result of this situation is that conventional education has become so expensive that it is difficult now for governments to find resources to encourage or enlarge it. On the contrary any well conceived institutional programme of distance education with increasing enrolment attains a self-generating financial potential to sustain itself. It has greater scope for experimentation and diversification besides offering wider choice and flexibility in its course material. The experiences of a number of open learning institutes in the Asia Pacific Region confirm the impression that for its modern hi-tech delivery system this calls for far lesser investment with a greater possibility of its expanding reach. In India IGNOU and four other Open Universities, though in their formative years, hold a greater promise towards financial self-sufficiency and cost efficiency in the matters of their relevance and access to the students. It is argued that it is only in the conventional packages in Humanities and Social Sciences that printing or audio visual media could be used in a cost effective manner. The science and application oriented vocational courses wherein our teacher student interface is absolutely essential within a well developed support system, the cost factor could not be lower. The setting up of laboratories and libraries for such courses would definitely enhance the investment factor thereby pushing the costs to an extent and initially these may even be higher as compared to our conventional arrangements and facilities in the colleges and universities. But within the ambit of flexibility, better co-ordination and part-time utilization of multishift facilities available under the conventional system, costs can be cut and the system can still claim to be cost efficient.

Print media is the backbone of distance mode. This has now been supplemented by the more advanced modern hi-tech audio video packages. While print media nails down the cost factor to its minimum level, the high tech material for self learning increases costs both at the production level as also at the level of recipient learners. But a judicious combination of the two with student support facilities made available through study centres at nearby places for collective use, could still moderate the cost factor and keep it under reasonable check from the viewpoint of its efficiency. Even if the costs are slighly higher, its related advantages that accrue to the students are multifold. The impact is singuler. the benefit is that these could be availed at the students own time, pace and option. If this factor were also to be computed in our analysis, the distance mode scores high in our reckoning. Regional consortia for information sharing could be an important channel to mutually share media facilities and cut costs. Besides this, it is relevant to plan different modules of excellence in different subject-specific areas and then share the same over a total population of students so that the students could get what is best in different institutions of distance learning with facility of mobile and transferable credits which system is incidentally not yet in vogue in India. This proposal, if judiciously accepted and incorporated in the charter of different open learning institutes, could enrich their students and enhance the quality of the competitive competence of youth. This method of gaining and sharing the excellence cultivated by each of the many distance education institutes could have a singular effect on the level of our education and could also simultaneously cut the costs because in this process the institutions could concentrate on what suited them as the best package and could exchange, share or sell the same to the others. This would avoid duplication of production of course materials in different institutions which more or less contribute to the level of mediocrity and multiply wastages in this age of resource constraints.

CONCLUSION

Thus it can be seen that distance mode has a greater potential to cut costs of higher education. What is required is organised pooling of regional resources and sharing of capabilities. Not only in the areas of hi-tech production of course material but also in the fields of expert excellence that quality of education can be shared. Besides this, the tailoring of subject-specific, area specific and region related courses can be standardised through better pooling of expertise and specialised inputs. Technology sharing has to be the common input now. There is no room for replication of conventional courses. The demand of education now is in hi-tech areas of professional excellence and all this has to be correlated to the cost factor that goes into their production. No country can afford money and manpower for any educational extravaganza which is least correlated to its social and vocational requirements. The youth can also not be subjected to proliferation of ill-conceived colleges and universities which are no better than academic slums because no amount of instant funds would be there to shape them into institutions of excellence. So the only answer today is distance mode whiloe making it a cost-effective through sharing of global experience. This would also mean almost negligible opportunity cost as students would be able to gain access to the best academic packages worldwide with pooled human endeavour.

Containing Costs in the Provision of Continuing Education for Commonwealth Professionals: a Place for Distance Education

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ABSTRACT

Increasing demand for continuing professional education in many Commonwealth countries has coincided with increasing insistence on full cost recovery from overseas students in others. The direct and hidden costs of releasing public service professionals to study abroad for extended periods has therefore led governments and professional associations to seek alternatives.

This paper reviews the planning processes and resource commitments involved in the development of two distance education courses intended for Commonwealth-wide use in the provision of continuing education and professional development.

INTRODUCTION

Amongst the key functions defined in The Commonwealth of Learning's Strategic Planning Document 1990-93 is one to establish a programme for the continuing education and training of Commonwealth professionals and para-professionals. This is a response to the growing recognition by Commonwealth governments that it is necessary, but not sufficient, to support people in gaining the initial credentials which qualify them to become professionals. In times of rapid technological and social change continuing investments have to be made in order that they maintain and enhance the skills, attitudes and awareness necessary for professional competence throughout their working lives. An important part of this continuing professional education will always be the regular updating of technical knowledge and skills learned in initial training. Equally important however is the need to make provision for competent professional performance in what Schon has called the "indeterminate zones of practice: uncertainty, uniqueness and value conflict." (Schon 1988). These are areas which, under timetable and other pressures have traditionally found little place in the initial training for most professions. But they are also areas in which specialist professionals will work directly with others whose formal qualifications may be quite different but whose job specifications are very similar if not identical to their own. Continuing education must therefore seek to broaden professional development as well as to strengthen professional credentials.

Maintaining access to continuing education with reduced student mobility

One of the major reasons for establishing The Commonwealth of Learning was the recognition, by Commonwealth governments, of the substantial reduction in student mobility brought about by policies enforcing full cost recovery fees in those countries which had traditionally hosted students from the developing world. In an opening address to the 5th meeting of the Standing Committee on Student Mobility the Commonwealth Secretary-General had described a "Stalingrad-type situation of siege and attrition" in which "the values of internationalism have tended to give way to calculations of monetary advantage" (Ramphal 1986). Looking for alternative strategies the Standing Committee recognised that "physical movement is not the be-all and end-all of educational interchange" and, by 1988, the Commonwealth Heads of Government had themselves established an Agency "to create and widen access to opportunities for learning.......making use of the potential offered by distance education and by the application of communication technologies to education." (COL Memorandum of Understanding 1987).

This paper describes two projects designed to take continuing education to professionals by distance education. In both cases there is already provision for limited numbers of students to travel to attend residential courses overseas: not only is this costly in direct monetary terms but it also removes these practitioners for an extended period from workplaces at which their services are urgently needed. In both cases the defined training need is professionally generic rather than a national or regional one so that "through cooperation the member countries of the Commonwealth can take advantage of distance education's power to cross frontiers and to make the richness of educational resources available to all" (Briggs 1987).

A distance learning programme in legislative drafting

Good governance requires good laws and good laws require good drafting which in turn requires good drafters. Legislative drafting as a specialist legal skill has had little if any place in undergraduate law degree curricula or in postgraduate professional training and in many jurisdictions new recruits to government drafting offices have been expected to learn the technical and legal skills on the job with varying levels of support from more experienced workplace colleagues.

Lawyers who need training in legislative drafting are scattered through many Commonwealth countries with widely different local conditions but the Common Law framework which links all jurisdictions also justifies a common base curriculum. The long established means of providing such formal training has been to send students to residential courses overseas and between 1974 and 1991 some 384 lawyers were trained under the Commonwealth legislative training programme now centred on the University of the West Indies, Cave Hill campus in Barbados (Slade 1992). The intensive training methods employed have always demanded low teacher: student ratios but an average of 23 graduates per year to serve 50 Commonwealth countries in a legal specialism with historically high turnover suggests under provision even when allowance is made for other training opportunities. Face to face training has also been expensive. Students on the 6 month Diploma course, almost all financed directly by their Governments with or without International Funding Agency subsidy, cost an average £6500-7000 for tuition, accommodation and book needs (Slade 1992), to which must be added both travel costs and, most significantly, the cost of drafting work foregone in the home jurisdiction during a trainee's absence. Ironically enough it has tended to be the larger countries, with larger drafting offices, which have been able to release trainees from their duties without bringing the drafting of ongoing legislation to a halt. In addition increasing numbers of students have been seeking access to the year long Masters programme offered at Cave Hill in preference to the shorter Diploma course, with obvious implications for costs.

In this context The Commonwealth of Learning working in collaboration with The Commonwealth Secretariat Legal Division decided early in 1992 to support development of a distance training course which would enable newcomers to drafting, and also those who later saw the need to upgrade their skills, to study within their own jurisdictions. An international Project Advisory Group has established a curriculum which covers the content for a course of 350-400 study hours based on an equivalent 110 standard contact hours, and contracts were established early in 1993 for the development of the legislative drafting content and for the instructional and graphic design. One basic requirement in planning the course was that it should be accessible to prospective trainees located anywhere in the Commonwealth from India (population 800 million) to scattered island nations such as Kiribati (population 69,000). This has significantly influenced the choice of media to be used in course delivery, reinforcing the place of print, the medium with which the majority of lawyers in any case seem most comfortable professionally. When complete the distance training course will comprise 6 substantial print based modules with integrated audiocassette support and a textbook or course Reader.

Legislative drafting is essentially an interactive process in which the professional drafter works by engaging in an ongoing and often lengthy dialogue with her material, possibly but not necessarily, involving a colleague or mentor from time to time. In addressing the training needs of drafters the parallel between this work process and a "guided didactic conversation" (Holmberg 1960) is close and intriguing. Designed for guided independent study the course will therefore use embedded exercises and self assessed activities as a matter of routine together with a regular exchange of trial drafting projects between trainee and tutor. A manual will also be produced to guide a locally based experienced drafter in the role of mentor. Provision has been made in the course design for the later addition of a computer assisted learning module for trainees with access to the required hardware.

A pilot module covering approximately one fifth of the curriculum content was field tested with a group of trainee drafters in the Caribbean in July 1993 and at the time of writing (August '93) is undergoing evaluation and revision to serve as a design prototype for other modules. The full distance training course is scheduled for completion in mid 1994. It will then be available in hard copy format for individual trainee enrolment and on disk for other educational uses and several higher education institutions involved in legal education have indicated an interest in using the course in their own programmes. The specialist nature of this training and therefore the relatively low direct enrolment potential (the Commonwealth Secretariat estimates 100 Commonwealth government trainees per year), taken together with the need to develop the course from scratch means that initial costs are substantial. Fixed costs of course planning, design, field testing and development will amount to £100,000. Specific levels of variable costs covering course delivery and implementation will depend on decisions yet to be finalised on the level of government support for trainees and of international grant aid for those governments requiring it and on the identification of appropriate central or regional agencies through which the course will be administered. However it can be predicted that, at about £3000 per capita, the cost of distance training in legislative drafting will be less than half the current direct cost of sending trainees for overseas training.

Distance training for managers of drug supplies

Efficient management of pharmaceutical drug supplies is an essential element in national programmes for the acquisition, storage, distribution and rational use of medicinal products and, where pharmaceutical drug supply is not managed by trained personnel, there is a direct impact on the work of health professionals in the field and a potential risk to patients. Whilst this concern may initially appear to establish a clear specification for the continuing education of professional Pharmacists, in many Commonwealth countries qualified pharmacists just cannot be spared to take on such central supply management duties. Any generic training programme, whether implemented 'in situ' or at a distance, must therefore take account of the fact that some with the job description of drug supply manager will be pharmaceutically trained, others will be management trained, whilst some will be qualified only by experience. This contrasts with legislative drafting training in which virtually all participants will share a core professional frame of reference as lawyers.

The WHO Action programme on Essential Drugs was established in 1981 to promote the global availability and accessibility of safe and effective drugs of good quality and their rational use. Problems faced in many Commonwealth countries include shortages and fluctuations in availability of essential drugs and in their procurement, quality control in storage and distribution and inadequate regulation of pharmaceutical standards and prescription (Richards and Spivey 1991). As with legislative drafting there have been some opportunities for residential training but these are very limited in number, largely confined to qualified pharmacists and expensive. The Commonwealth Pharmaceutical Association therefore approached The Commonwealth of Learning seeking advice on the possibility of developing distance training for use throughout the Commonwealth with a view both to reducing costs and broadening access for pharmacists and others involved in this important sector of health care. By the middle of 1993 plans are well advanced for the development of a 12 module print based training course with integrated audiocassette support covering 150-200 study hours based on an equivalent 50 standard contact hours: design and production will be undertaken by the School of Pharmacy at Robert Gordon's University, Aberdeen Scotland working in close liaison with the WHO on course content and with The Commonwealth of Learning on course design and delivery. There is already a well established set of standard information and procedures for the guidance of drug supply managers, much of which is available for adaptation free of cost and of copyright constraint, and the challenge will be to deliver these in such a way as to ensure that the materials are both definitive and flexible enough to accommodate a wide range of different contexts. Provision will be made for periodic assessment which may well take the form of computer marked assignments: local support group tuition will also be sought wherever this is feasible.

The cost of sending a pharmacist to attend a 9 week University residential course on "Effective Drug Management and Rational Drug Use" in 1993 is £4,000 which includes tuition, accommodation and a daily subsistence allowance for food, but not international travel nor the opportunity cost of workplace productivity foregone. Because it is designed for all drug supply managers, whether pharmaceutically trained or not, the distance training course will cover a narrower curriculum but one which should provide greater depth in financial and stock management, drug purchasing and distribution strategies and quality control. Current best estimates suggest 800 enrolments over a 4 year course life: although the course is now only in the early planning stage it seems likely that the unit cost for design, development, production distribution of course materials and provision of 4 sets of computer marked assignments will not exceed £450.

CONCLUSION

This paper has described two projects which address defined needs for continuing education and professional development. They provide clear contrasts in terms of aims, strategies and costs. They share the objective of meeting, on a collective basis, the concerns of many developing Commonwealth countries over the escalating costs of student mobility.

REFERENCES

Briggs A. (1987), *Towards a Commonwealth of Learning; Report of the Expert Group on Commonwealth cooperation in distance education and open learning*, London: Commonwealth Secretariat.

Holmberg B (1960), *On the methods of teaching by correspondence*, Lund: Gleerup.

Ramphal S. (1986), "Opening Address by the Commonwealth Secretary General to the 5th meeting of the Standing Committee on Student Mobility". Manuscript.

Richards M. and Spivey P. (1991). "Effective Drug management and Rational Drug Use." Course Prospectus: School of Pharmacy, The Robert Gordon Institute of Technology, Aberdeen.

Schon D. (1988), *Educating the reflective practitioner*, San Francisco: Jossey-Bass.

Slade N. (1992), "Distance training for Legislative Drafters: a progress report for the meeting of senior officials of Commonwealth Law Ministries". Manuscript.

Pricing Aspects of Internationalized Programmes

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ABSTRACT

Overseas universities offer a variety of degree programmes to foreign students on campus and offshore. Charging the same fee for different types of internationalized programmes leading to the same award is unnecessarily restrictive.

INTRODUCTION

This paper is concerned with the pricing of on-campus and offshore degree programmes available to foreign students. It examines the uniform fee and multiple fee approaches.

INTERNATIONALIZED PROGRAMMES

In the field of distance education, University of London's external degree courses are well-known. For years Hong Kong students, for example, could, and still can, study for a degree from that prestigious university without having to set foot on the British Isles. Many other universities have since entered the Asian markets for foreign degree courses. In Hong Kong, the British and Australian universities head the list of providers of offshore degree programmes (Lee and Lam, 1993).

Types of internationalized programmes

Figure 1 summarizes the different types of internationalized programmes. The most common type is the on-campus programme which both domestic and foreign students attend ([A1 + A2]). There are also those programmes which are delivered on a distance learning mode ([B1 + B2]). If face-to-face tuition is also part of the offshore programme, it is provided by visiting academics from the overseas institution. Some of the programmes offered on a distance learning mode are patterned after the traditional London model in which the institution's involvement is confined to the assessment of students at arm's length. Then there are those offshore programmes which are taught offshore by local academic staff [C1 + C2]. In some distance learning packages ([B1 + C1]), face to face tuition is provided by a combination of both visiting academic staff from the home campus and offshore tutors. Finally, some of the internationalized programmes ([C1 + A1]) are split-degree programmes in which part of the curriculum is offered offshore and the remainder of course must be completed on campus.

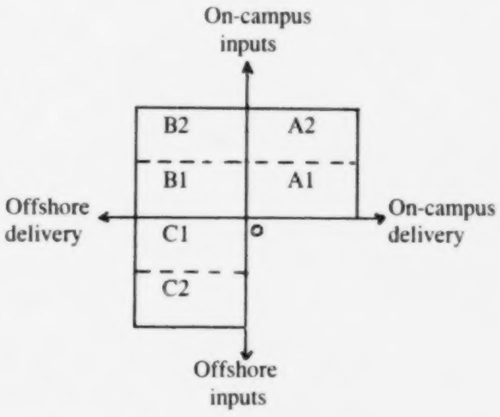

Figure 1 Types of internationalized programmes

The types of offshore programmes offered vary between institutions and between the disciplinary areas within the same institutions. An institution may have more than one type of internationalized programme on offer. Offshore programmes on a distance learning mode are offered by institutions without a track record in external courses as well as those with a tradition in distance education. As can be expected, not all programmes are internationalized. Most of the internationalized programmes are in the accounting, administration and business areas.

Collaboration with a local institution or agent is part and parcel of offshore operations. The overseas institution may have a different local partner for each of its offshore programmes. Equally, it may have just one local partner for all of its offshore programmes.

PRICING OF INTERNATIONALIZED PROGRAMMES

As in other industrial countries, universities in the U.K. and Australia do not receive government funding for foreign students studying on campus. Foreign students are required to pay full fees. Whatever may be the driving force behind the internationalized programmes, full cost recovery is expected of all offshore operations. If the same course is offered on campus and offshore, fee setting is not as simple as when the course is available on campus only. It becomes more complex when offshore resources are employed for programme delivery.

Depending on the administrative arrangements, the course fees for foreign students are usually expressed in domestic currency and remain the same for the duration of the course.

Uniform fee approach

Where degree programmes are available on campus only ([A1 + A2] in Figure 1), fee determination is a straightforward exercise, although the same fee for the duration of the course in times of high inflation may frustrate easy implementation of the cost recovery principle.

In some universities more than one type of internationalized programme are available for the same course. To the extent that the admission requirements are identical, that the course and the academic standards are the same and that the different programmes irrespective of the point of delivery lead to same award, there is a view that foreign students should pay the on-campus fee whether they enrol in the program on campus or offshore. The implicit assumption is that the demand conditions are the same for the different types of internationalized programmes.

The uniform fee approach benefits those foreign students who have a choice between the on-campus programme ([A1 + A2]) and the offshore programme ([C1 + C2] or [B1 + C1] or C1 in [C1 + A1]). By enroling in the offshore programme, the student saves the additional costs of overseas travel and living away from home.

Given the differing costs between on-campus and offshore deliveries, the uniform fee approach permits cross subsidization. However, once the fee has been set, assuming it to be optimally determined, any shift of enrolment from one point of delivery to another due to a change in demand conditions has budgetary implications.

There is less concern if, other things being equal, fewer students than planned enrolled at the high-cost delivery point, but the decrease is exactly offset by more students than planned enroling at a low-cost delivery point. However, a reduced surplus, if not a deficit, might occur if the decrease in the enrolment at the low-cost point of delivery is matched by the increase in the enrolment at the high-cost point of delivery.

With the same fee being charged for the duration of the course, the unexpected changes in enrolment in any one year have budgetary implications for the rest of the period.

Economic changes in offshore centres put the uniform fee regime under strain. Where offshore teaching ([B1 + B2]) is performed by visiting on-campus staff, the rising costs in the offshore centre probably do not pose a threat to the viability of the offshore programme. The situation is different if the offshore segment (C1 in [C1 + A1]) is significant. The impact is also serious if offshore resources are employed to organize and teach the programmes ([C1 + C2] or [B1 + C1]) in an environment where salaries, both academic and non-academic, are rising at a relatively faster pace than those for on-campus staff. Contrast the 9% growth in Hong Kong's academic salaries and the zero growth in Australia's between 1992 and 1993.

Unless the fee set for the programme anticipates the rise in offshore costs, a fixed fee for the duration of the programme compounds the problem.

Multiple fee approach

The uniform fee approach does not permit the different market conditions to permeate through, especially from the demand side. Demand conditions differ between the home base and offshore centres and also between offshore centres. Full-time foreign students are more likely to opt for study on campus ([A1 + A2]) whereas people in full-time employment will only be interested in offshore programmes ([B1 + B2] or [C1 + C2] or [B1 + C1] or C1). Distance learning material with regular tutorial support may have a market in one offshore centre but not necessarily in another. Market segmentation also exists within a particular offshore centre.

Foreign students usually do not perceive the offshore programmes offered by the different universities as being identical in every respect. There are sufficient perceived differences between universities, however minute, in the standing of the overseas institution, the quality of the internationalized program, the mode of delivery, or some other attributes, to enable each provider to take advantage of them to create a niche in the offshore markets for foreign degree courses.

By differentiating their products, the overseas universities each set a fee which the market can bear and operate in competition with one another. Whether the provider is able to charge a phenomenal fee depends on how keen the prospective students want to take the course. What is significant is that the overseas institution may set different fees for the on-campus and offshore programmes.

If the prospective students' keenness is strong and hence insensitive to fee variations, a higher fee is unlikely to significantly affect the competition for places. If it is sensitive, a higher fee tends to discourage a disproportionately large number of eligible persons from lodging an application. In fact, the overseas institution may set a different fee for each if the two groups are in different centres.

Although overseas institutions are able to set prices, they operate in a competitive environment. If the fees for similar programmes offered by other institutions also vary, the prospective student has a choice not just between to enrol or not to enrol in one particular offshore programme at a given fee, but also between the offshore programmes offered by different universities. Overseas universities often engage in non-price competition to recruit students, launching advertising campaigns to promote themselves as well as their offshore programmes.

Where offshore resources are employed, the rise in local costs affects all overseas institutions offering the same type of offshore programmes. In a competitive environment, however, there is a limit to which the cost rises can be passed on without meeting consumer resistance. Nevertheless, fee levels are expected to move upwards in the light of rising local costs. If each centre operates as an independent unit, the on-campus fee is unaffected by the change in economic circumstances in the offshore centres.

Finally, if fees are to reflect local market conditions, they are best expressed in local currencies, although it will be the overseas universities rather than the students who will take the risk of exchange rate fluctuations.

REFERENCES

Lee, N. and Lam, A.(1993), 'Overseas education programme in Hong Kong: competition or consortia', Open Learning, 8(2), 12-17.

Adult Learners in Hong Kong: Motives, Deterrents, Plans

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BACKGROUND

In Europe, and still more in North America, there is a strong tradition of research into the reasons why adults participate (or do not participate) in formal learning activities: classic studies include Houle (1961), Johnstone and Rivera (1965), Boshier (1971), and Darkenwald and Valentine (1985); useful summaries of the literature are provided by Courtney (1981 and 1992) and McGivney (1993). The research has three main aspects. First, there are socio-economic descriptions of participants and non-participants. Second, there are studies of the deterrents to learning: these are categorised by McGivney (1993: 17-22) as lack of information, situational barriers (particularly time and cost), and institutional and dispositional barriers. Third, there are studies of motivations, which have often been studied through factor analysis in a tradition stemming from Houle, but developed by Boshier.

There has, however, been little comparable research in the Asian context. Yet the rapid development of adult education opportunities implies a range of policy decisions by private and public sector providers which, in the absence of such research, must inevitably be made on a more or less haphazard basis. (The European and North American research has often stemmed originally or in part from policy or marketing concerns.)

THE HONG KONG CONTEXT

The Hong Kong government has never made a substantial priority of adult education. Its chief concerns have been with the development of universal primary education, and since the late 1960s with the introduction of secondary and tertiary (but still initial) education. Even in the heyday of British colonial enthusiasm with adult education as a mechanism of democratic and economic development (in the 1940s and 1950s), the Hong Kong government showed a marked reluctance to jump on the bandwagon. As a result, Hong Kong's adult education policy has been formed incrementally. Institutions have been established from time to time, on a more or less *ad hoc* basis, which reflect temporarily prevailing official views. These institutions then tend to persist, and passing views thus gain some lasting institutional weight. Examples of this are the formation of the government adult education section and the University extra-mural department in the 1950s, and more profoundly the formation of the Vocational Training Council in 1982.

In the absence of major official adult education policies or provision, and given the strength of economic growth, the tendency has been for the private sector to seek to meet an evident demand for post-initial education and training. During the 1980s, the government took note of this; the market approach became a method of developing adult education and training at very limited cost to the public purse. It was reached in the wake of the widespread establishment by tertiary educational institutions (and others) of largely self-funding continuing education units, most of which managed successfully to offer short course, and degree level, programmes on a self-financing basis.

In this process of development, information has been provided primarily by the market. There has been relatively little formal research, even in a market-analysis form. The research reported in this paper reflects a concern to provide some data about the Hong Kong adult learner. It also reflects a sense that reliance on the market alone, while effective in the pursuit of economic development, may lead to inequities and inefficiencies in the distribution of educational rewards.

Adult education internationally has long been informed by its role as a force for democracy and social justice, as well as for economic development. A.L. Smith, Chairman of the British Ministry of Reconstruction's Adult Education Committee, argued (in his covering letter to the Prime Minister), that "*adult education must not be regarded as a luxury for a few exceptional persons here and there, nor as a thing which concerns only a short span of early manhood, but that* *adult education is a permanent national necessity, an inseparable aspect of citizenship, and therefore should be both universal and lifelong. (Cmd 321 1919: 5)".* More recently, these traditions have been central to international thinking on adult education as reflected by UNESCO. "Concern for the weak and underprivileged", concern about participation and equality of access for all, the principle of the "right to learn", have been recurrent themes at UNESCO conferences (Bhola 1988: esp 24-26). If such aims are to be achieved, a first step is improved knowledge of the present social allocation of adult education opportunities.

METHODOLOGY

Two main questions interested us. Why do Hong Kong adults choose to involve themselves in educational pursuits? What factors prevent or discourage them from doing so? Our starting point was the existing literature, and in particular contributions on the notions of "motivations" and "deterrents". Research involved a pilot survey, followed by a telephone survey of adults (randomly selected from the residential telephone directory issued by the Hong Kong Telephone Company). The survey was carried out on three evenings within a single week in 1991, two on weekdays and one on Sunday. Out of 860 phone calls attempted, 550 were answered. In 325 cases (59.09 per cent), qualified respondents answered the questions, while 150 respondents (27.27 per cent) declined to participate. The remaining cases were rejected for various reasons.

THE ADULT LEARNER IN HONG KONG

Our first aim was to provide some answers to the question: Who takes part in adult learning in Hong Kong? We asked whether respondents had attended at least one course during the previous twelve months. Nearly one quarter (22.53 per cent) of our respondents had done so. These students were overwhelmingly young: for example, nearly four out of every ten people aged 20-24 had attended a course. The figures were also high among the 25-29 and 30-35 year-old age groups. From the mid-30s there is a marked dip in attendance rates; although our age bands may obscure minor variations, it is apparent that only one in nine or ten adults above the age of 35 attend classes, while still fewer elderly people do so.

Women take courses more often than men: 25.71 per cent of women had attended a course, as compared with 19.58 per cent of men. This is despite the markedly low rate of participation among housewives (12.28 per cent). (Marriage in general may have an adverse effect on educational activity of parents: some 17.10 per cent of married respondents had taken a course in the previous year, while the rate for single respondents was 31.75 per cent: this is not, however, controlled for age.)

There is also a strong tendency for participants to be relatively well-educated. In short, it is the better-educated who seek further educational opportunities. (This tendency is by no means confined to Hong Kong, of course.) Those without even secondary education are most disadvantaged: their rate of participation in continuing education (11.19 per cent) is half that of those who have some secondary education, and less than one-quarter of that of matriculants. While it is the matriculants who are keenest in their pursuit of continuing studies, those with still higher prior educational attainment (degree and postgraduate) participate far more than those with only secondary or primary education.

Further, there is a clear association between occupation and participation in continuing education. Workers in "blue collar" occupations, are roughly three times less likely to take part in continuing education than those classified as "white collar" or "professional and executive". Against this finding, no very clear association emerged from our survey between course attendance and income.

The typical Hong Kong adult learner emerges from our survey, therefore, with characteristics not unlike those revealed in literature on OECD countries (McGivney 1993). She (or he) is relatively young, educationally successful, employed in a white collar, professional or executive job, and slightly more often female than male.

We were interested, however, not only in who attends classes, but (perhaps more importantly) in why they do so, or do not. We sought to address this chiefly through the idea that those who attend are motivated to do so by various factors, while there are also countervailing deterrents.

DETERRENTS TO LEARNING

We sought to study what discouraged or hindered people from participating in continuing education by prompting all 325 respondents with a list of possible deterrents. They were asked to select those applicable to themselves. The most commonly cited factors were related to time. Seven out of ten respondents (71.69 per cent) claimed to have no time to attend any (or any more) classes, while nearly half thought class meeting times were inconvenient.

Many people (45.23 per cent) also mentioned their need to take care of other family members: 57.93 per cent of these needed to look after their children, 17.93 per cent their parents and 13.10 per cent needed to look after both parents and children.

In addition, many respondents mentioned clear, and in some cases remediable, inadequacies on the part of continuing education providers: some 45.23 per cent said a lack of course information deterred them from attending, while 40 per cent held that meeting places were inconvenient. While most respondents found course fees reasonable, 23.08 per cent said they did not have the necessary money, and 19.38 per cent found the course fees too high. A substantial minority, in short, appears to be deterred from attending continuing education for financial reasons. We also found that there was a very low level of knowledge of the providers themselves: 43.4 per cent of adults questioned were unable to name even a single continuing education institution, and no single institution was named by more than 20 per cent of respondents.

We then looked in more detail at specific groups of "non-participators": those whose participation rate was especially poor. Among housewives, time was the major problem: 82.46 per cent cited this as a deterrent; many needed to take care of family members (87.72 per cent). Financial difficulties were rarely mentioned, and housewives often lacked self confidence in taking courses. They also often found course venues inconvenient.

Among the older age group (aged 40 or above), some 69.39 per cent (perhaps unsurprisingly) felt "too old to study". Generally speaking, they showed less confidence about undertaking further study. Their responses to other self-confidence factors were also significantly more negative than the average. Lack of interest in continuing education (50 per cent) and the shortage of money (40.82 per cent) were also factors mentioned more often than average.

Blue-collar workers' extremely low participation rate (11.27 per cent, only 8 out of 71) was probably due to their longer working hours. Most of them (64.79 per cent) also needed to take care of the family. Time related factors "no time" (80.28 per cent) and "inconvenient meeting time" (57.75 per cent) were major deterrents for this group. Lack of interest in attending continuing education courses was rather high (53.52 per cent). Other significant deterrents included "lack of course information" (53.52 per cent) and "inconvenient meeting place" (50.70 per cent).

There appear to be a number of specific barriers or deterrents to participation. Indeed, all these barriers to participation have differential impacts on different sections of the adult population. Despite Hong Kong people's reputed thirst for learning, continuing education is not part of the culture for a large proportion of the population. If such people are to be encouraged to partake in continuing education, improved dissemination of course information, financial support, and more encouragement are called for.

MOTIVATIONS TO STUDY

In order to establish some of the factors which induce people to participate in adult education, we asked the 139 respondents who had attended courses why they took part in those courses. Each was asked to state their aims in taking the course they had last attended. This was an unaided question, with no hints or guidance provided. The results emphasised a strong desire to improve their personal abilities. Rather over ninety per cent mentioned one of three reasons (self development, improving job skills, or fulfilling interest) closely related to this.

Some of these factors were of course related to employment: 28.05 per cent saw improving job-related skills as their major motivation, while a further 5.04 per cent explicitly sought to improve their prospects of promotion. But there is evidence that motivations are not simply or primarily a matter of improving one's marketability. Many respondents mentioned reasons classified as self-improvement (32.37 per cent) or fulfilling interests (23.02 per cent). This suggests, at least, a wide definition of improved marketability, and arguably a substantial proportion of adult students are motivated only in part by economic or career factors.

These conclusions were broadly supported when we then prompted respondents with a list of factors and asked whether each was one of the major reasons why they took courses. Again, improving job skills was a major concern. Yet still self development and fulfilling interest stood out as choices selected by most respondents. Promotion, increased salaries and changing jobs were mentioned only by between two and four out of ten respondents. Immediate reward in money terms, such as promotion and salary increase, though important, does not appear to be the sole force driving Hong Kong people to take part in continuing education. In a community where the pursuit of wealth and self-advancement is by no means frowned upon, the prominence of broader motives is noteworthy.

STRATEGY AND PLANS

From our study, it appears that adults in Hong Kong commonly plan well in advance whether and when they will study. Over one-quarter of our respondents claimed to have a study plan for the coming year. Of these, about 68 per cent expected to spend between three and six hours weekly on education. (Some 12 per cent could spend over ten hours per week.) In their annual budgets, 35 per cent were ready to spend around HK$1,500-3,000, while for 13.64 per cent more than HK$5,000 annually seemed feasible.

Those who planned their future studies most actively were those who had attended courses more often in the past. People who had attended courses in the past 12 months were twice as likely as those who had not attended a course for a year or more to have plans to participate in continuing education in the year ahead. (The most recent attenders were also 4.5 times more likely to have study plans than those with no continuing education experience whatever.)

DISCUSSION

What conclusions can we draw from this data in relation to the broad questions, posed at the outset, about the strengths and limitations of a market-driven approach to continuing education? It is clear, firstly, that continuing education in Hong Kong is a large market, and appears to respond well to the needs of a substantial section of the population. For them, it is a part of their culture, of their regular pattern of activities. This group (perhaps 930,000 people on the basis of our survey) is, however, a minority of Hong Kong's adult population. These adult students are socially relatively homogeneous: they are relatively young, they already have quite a good education, they are upwardly-mobile and ambitious. They are not motivated solely by narrow economic or career concerns: they appear to have a positive sense of the value of education to their general development. They may indeed see themselves as making an investment, but many do not do so in the expectation of immediate or financial returns.

For some observers, such a profile of the typical adult student will vindicate the decision to make only very limited interventions in the continuing education market: the invisible hand has done its work. The result is to bias educational benefits strongly towards the younger section of the population, whose contribution to communal prosperity will (over time) inevitably be greatest. To such observers, it will appear natural and right that the older will partake less, for they have less to gain from the investment.

Yet this Panglossian approach obscures very real inequities of distribution in educational opportunity. This can be a matter of economic concern. In a restructuring economy, can we be content that blue-collar workers play very little part in continuing education? What are the medium- and long-term economic costs involved? At what cost to the community do we accept that housewives, for example, are very largely excluded from the benefits of education and training for a substantial period of their lives? Can it be taken for granted that those with high levels of education will have the most to gain from continued participation?

In addition to economic concerns, there are also grounds for asking questions about the social or welfare impact of current structures for allocating continuing education. Are we really content with a system in which 92.59 per cent of those aged sixty and over do not benefit from continuing education? What are the consequences for childcare, for children's education, and indeed for family life, of accepting that nearly nine out of every ten housewives will not be taking part in adult education?

There is clearly a need to strike a balance between market allocation and identified social priorities in distribution of educational opportunities to adults. The government has, over the years, made some attempts to meet identified adult educational needs on a non-market basis. Yet it is far from clear that these respond to the educational needs of any but a relatively small section of the (already) quite educationally privileged. Would there not be more benefit to the community (not to say more social justice) in targetting such expenditure far more on those who are now underprivileged? One relatively cheap approach would be through pilot projects for which existing educational institutions could bid; if such projects also had a research or evaluation element, their effectiveness could be assessed and disseminated for future reference. The present culture, in which evaluation of programmes tends to be regarded as a trade secret, rather than as legitimate public information, can only be harmful to the longer-term development of Hong Kong's continuing education.

REFERENCES

Bhola, H.S. *World Trends and Issues in Adult Education*. London: Jessica Kingsley/UNESCO.

Boshier, R.W. (1971). Motivational orientations of adult education participants: a factor analytic exploration of Houle's typology. *Adult Education* (US) 21, 3-26.

Cmd. 321 (1919), *Ministry of Reconstruction. Adult Education Committee, Final Report*. London: HM Stationery Office.

Courtney, S. (1981). The factors affecting participation in adult education: an analysis of some literature. *Studies in Adult Education* 13(2), 98-111.

____ (1992). *Why Adults Learn. Towards a Theory of Participation in Adult Education*. London: Routledge.

Darkenwald, G.G. and Valentine, T. (1985). Factor structure of deterrents to public participation in adult education. *Adult Education Quarterly* 35(4), 177-93.

Further Education Unit (1987), *Marketing Adult Continuing Education*. London: FEU.

Houle, C. (1961). *The Enquiring Mind*. Madison: University of Wisconsin Press.

Johnstone, J.W.C. and Rivera, R.J. (1965). *Volunteers for Learning. A Study of the Educational Pursuits of American Adults*. Chicago: Aldine Publishing Co.

McGivney, V. (1993). Participation and non-participation. A review of the literature. In R. Edwards, S. Sieminski and D. Zeldin (eds.), *Adult Learners, Education and Training*, London: Routledge.

Costs, Performance Measures and Benefits of Open Learning: a Canadian Case Study

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ABSTRACT

The reasons for the cost benefit study

The Agency was formed in 1988 by the merger of two previously separate provincial government organizations, the Open Learning Institute (OLI), and the Knowledge Network (KN). OLI was primarily a text-based distance teaching organization; Knowledge Network operated an educational television channel, tested educational applications of telecommunications, and provided an audio-conferencing service. The aim in merging the two organizations was to integrate more closely their resources and missions.

During 1992-93, I conducted a cost benefit analysis of the Open Learning Agency's activities between 1986/87 to 1991/92. The study was in three parts. Part 1 analysed the combined revenues (inputs) and benefits (outputs) of the Agency over the six year period of study, in relationship to the rest of the British Columbian post-secondary education system. Part 2 analysed the internal allocation of OLA's funds, and related this to the outputs (benefits) of the individual operating units of the Agency, over the same period of time. Both these studies have been completed (Bates, 1992, and Bates, 1993). Part 3 has a number of different aims: to establish a cost per student in terms of equivalent full-time study (cost per FTE), for different program areas; to assess the cost structures of different kinds of courses, in particular those based on different technologies for delivery; and to calculate the marginal cost of additional students in different courses. Part 3 has not been completed, although it is underway.

One aim of the study was to identify the relative extent of government funding and Agency outputs compared with those of the rest of the post-secondary education system over this period. Secondly, even after the merger, the Agency has been going through a major transition. Although a large part of its operation is still concerned with running an educational television channel and delivering distance education courses to individual learners, it has expanded into a range of other activities, such as flexible assessment and transfer of credit, 'laddering' of college courses into degree programs in collaboration with colleges, workplace training in partnership with employers and unions, schools television, and providing courses for high-school leavers, in partnership with school boards. The Agency has also been diversifying its use of technology, moving to electronic publishing, and adding video-and computer-conferencing to its delivery technologies.

Thirdly, the Agency has substantially diversified its sources of revenues over the period. Many of its activities depend either partly or wholly on recovering costs from users. The study identified some of the financial management issues that arise when revenue sources are diversified. Lastly, its move into activities which cannot be directly related to direct enrolment of students with the Agency raises the question of how to measure its performance. Indeed, institutional performance is becoming a major issue in North America, and it is essential that we develop performance measures appropriate to our unique mandate. This study was seen as one means by which to develop and test such measures.

The context of open and distance learning in British Columbia

To appreciate fully this study, it is necessary to place the Agency in the wider context of the British Columbian education system. There are three universities, and 15 regional community colleges, some of whom offer first and second year university courses. All three universities, and a few of the colleges, offer some courses at a distance. Distance education programming is co-ordinated throughout the province through planning councils, on which are represented each of the institutions offering distance education courses. Through transfer of credit, students can take courses from different institutions, and role them into one qualification (see Black, 1993, for a full description of open and distance learning in British Columbia.)

In 1992/93, the Agency offered over 240 credit courses to approximately 14,000 independent learners annually. It awards university degrees and diplomas and college-level credentials, and its educational television channel is viewed by over 400,000 people each week. The Agency's primary objectives can be summarized under two broad headings:

- offering open learning courses and learning opportunities not available through other provincial institutions in the province;
- providing a range of provincial-wide services that increase access and flexibility, for use by other provincial institutions, as well as by the Agency itself.

Results of the studies

The post-secondary system as a whole in B.C. grew rapidly in real terms between 1986/87 and 1991/92. Operating funds from the Ministry responsible for universities and colleges increased by 33% in real terms, and capital funding increased form $34 million in 1986/97 to $251 million in 1991/92. This was a deliberate policy, in order to increase access to post-secondary education in the province.

OLA's operating income from the Ministry, up by 58% in real terms, increased at an even faster rate than revenues for the rest of the system; some of this increase came from baseline funding, but most of the increase was through special purpose (earmarked) government funding. The Agency's increase though in revenues from *other* than government sources was even greater (by over 150% in real terms since 1986/87).

Despite the rapid growth of OLA, in absolute terms it is still a relatively small cost to the system, absorbing 2.4% of the Ministry's operating grants in 1991/92 (up from 2.1% in 1986/87), and ranking 12th of the 23 B.C. colleges, institutes and universities in terms of grant.

There was a significant increase in most activities over the period 1986/87-1991/92. *Collaborative agreements* were put into place for twelve laddered degree programs, 67 new work-place contracts were signed, transfer credit evaluations increased by 150%, and agreements were signed with 27 native learning centres. It is difficult to relate this activity to the activities of other institutions or directly to Ministry funding; although some special purpose funding was earmarked to support the infra-structure for collaborative activities, for example for workplace training, in general this activity has been 'absorbed' by Agency regular staff.

Instructional materials increased by 43% in terms of courses and 49% in terms of course credit equivalents, available in total to students between 1986/87 and 1991/92. New course development and acquisition was greater in 1991/92 than 1986/87 by 42% in terms of courses, and 53% in terms of course credit equivalents, acquired or developed each year. Marketing of materials increased from nothing to $1.4 million over the same period.

Instruction also expanded over the five years. Enrolments and FTEs in the Agency's university programs increased by 39%, compared with 33% for the rest of the system. At the same time the Agency rapidly expanded the collaborative degree program. There was a substantial increase in the number of graduates from the Agency's university programs, from 2 to 86. The picture regarding the college programs is more complicated by the transition to workplace training. Enrolments and FTEs in 'stock' distance education courses held reasonably steady until 1991/92, but then dropped by 10% and 3% respectively, compared with an increase of 21% in the rest of the system. This drop was balanced to some extent by learners impacted by workplace based training projects, although it is difficult to quantify this in the same terms as 'traditional' enrolments.

Electronic network activity was relatively constant over the period, with high viewing figures being sustained, although viewing figures dropped somewhat from their peak in 1989/90. There was a worrying drop in programmes coming from other educational institutions in 1991/92, and in-house production, always a small proportion of the programming, also decreased significantly in 1991/92. There was a major increase in audio-conferencing activities over the period, with the client base being substantially widened, greater use of the service by OLA's own program areas, and more than a doubling of the hours of usage.

Basically, while OLA received substantial increases in funding from its Ministry over this period, the Agency increased even more its funding from other sources. This enabled the Agency to achieve substantial increases in both the development and delivery of instructional materials, while at the same time widening its range of activities into laddered degree programmes, marketing of materials, and workplace training.

By the end of the six year period under study, a far lower proportion of the Agency's funding came form the Ministry base grant, although the grant had increased substantially in real terms. In 1986/87 74% of all revenues for OLI/KN came form the Ministry base grant, and the rest came mainly from students fees. By 1991/92 the Ministry base grant covered only 56% of all OLA operating expenditure; 27% of the Agency's operating budget in 1991/92 ($7.8 million) was covered by special purpose funding and revenue development through the marketing of materials and services. A major change over the six years was the creation of the business development area, which added $4 million (13%) to revenues in 1991/92. Thus the Agency had substantially diversified its sources of revenues, bringing in $7.8 million in 1991/92 over and above the Ministry base grant.

Diversification of funding impacted on the ways funds were allocated. In 1986/87, the two separate organizations (OLI/KN) both rolled almost all their revenues (98%), made up almost entirely of Ministry base funding and student fees, into a single base operating (expenditure) fund in each institution, which was then re-allocated as a result of management decisions; the rest (2%) of the operating revenues were tied to separate special purpose (i.e. earmarked) funds. By 1991/92, only 73% of all revenues went into a 'general' base operating fund; the remaining operating expenditures (27%) came from special purpose funds, which in general were 'tied' to particular activities defined by the funding agency.

Overall, although there were some wide variations in individual departments, there was surprisingly little change over the six years in terms of the distribution of funds between the main operating units, despite the merger of two previously autonomous institutions, a subsequent major internal re-organization, and some major changes in direction.

There was an overall increase in costs, as well as revenues, with programming costs increasing by over 50% in real terms; in the college area costs almost doubled in real terms. Most of these increases were in delivery, rather than development.

At the same time, the range of services offered by the Agency increased substantially over the six years. In addition, it diversified its funding base, and now raises substantial sums of money each year from other than government sources. In summary, the Agency has increased its effectiveness, but with some loss of efficiency due to diversification.

Discussion

The diversification of funding sources has caused some anomalies and tension within the Agency. For instance, the salaries of a substantial number of staff dependent on special purpose funding are much more at risk than those funded through Ministry base grant, even though their activities are central to the Agency's strategic directions. There has been a tendency by some staff in 'internal' service units to think that activities funded from base have priority over activities funded through special purpose grants, exascerbated by the fact that activities funded from base can be planned well in advance and thus tend to commit service units for the year, whereas special purpose funding can occur at any time, and such projects tend to need a very fast response from service areas already fully committed to base projects.

Also, the financial reporting system is based on a 'base operating fund' model, whereas many of the specially funded projects operate on a cost recovery basis. The base operating model provides excellent financial control, ensuring that at the end of the year, the Agency has not overspent its funds. It does not however provide information in the form that managers of cost-recovery projects need, enabling them to relate directly expenditure to revenues. There is also a great deal of dissatisfaction over the way the 'overhead' policy operates regarding special purpose funding; some departments get additional funding directly allocated as a proportion of the contract; others have to charge back for services. What is clear is that when a public institution substantially diversifies its sources of funding, it needs to develop new financial management strategies that are appropriate to this situation.

With regard to calculating costs per FTE for our 14,000 independent learners, we will be building this in modular form, with the following components on a course by course basis per FTE: cost of course development; cost of instructional delivery; other direct student support costs (registration, exams, etc.); other indirect costs that can be related directly to independent learners. This last element is particularly difficult to calculate, since an increasing proportion of the Agency's activities, for instance the television service, and service to and collaboration with other institutions, are not concerned with direct instruction of its own students.

The study identified a number of areas needing further investigation. Although the Agency has an excellent financial data-base, it is configured in such a way that it is difficult to collate information in a form that relates to key activities that cross departmental boundaries, such as the cost of course development, or costs per FTE in a particular programming area, or even more importantly, calculating the marginal cost of increasing or decreasing student numbers on a course. To provide information on these areas at reasonable cost and accuracy, substantial work needs to be done to re-configure the financial reporting system, which in itself has a cost. Unless this is done, though, the Agency will find it increasingly difficult to be accountable to its rapidly diversifying base of clients.

The study also demonstrated that the standard data required from all post-secondary institutions by the Ministry for annual reporting purposes covered only one part of the Agency's mandate, that concerned with direct delivery of instruction to individual students. This study helped to identify more clearly the measures needed to reflect more accurately the Agency's performance, in terms of its wider mandate.

References

Bates, A.W.(1992) *Cost Benefit Analysis of the Open Learning Agency's Activities: Part 1: Inputs and Outputs for the Agency as a Whole* Burnaby, B.C., The Open Learning Agency

Bates, A.W.(1993) *Cost Benefit Analysis of the Open Learning Agency's Activities: Part 2: Outputs and Expenditures by Functional Areas* Burnaby, B.C., The Open Learning Agency

Offshore Business Degree: The Economics of Student Support

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ABSTRACT

A characteristic of distance learning in many parts of Asia has been a considerable increase in recent years in the number of distance learning business degrees being offered by offshore providers.

Various institutions provide different levels of student support and this paper, drawing on the example of degrees offered in Hong Kong, looks at the economics of the various approaches taken by providers.

The paper looks at the costs to the awarding institution of local academic advice, local tutorial support, library support, course material adaption and support from academics in the awarding institution.

INTRODUCTION

An earlier paper by the authors of this paper examined the level of support being provided to distance learning students by offshore providers. (Back)

This paper is an extension of the earlier paper and looks at the economics of providing this student support.

To illustrate the issues involved in student support by offshore providers the research described in this paper and the earlier paper examined the support being provided to Hong Kong students studying undergraduate and postgraduate business distance learning awards from universities and colleges from outside Hong Kong and Macau.

The earlier research revealed that the level of administrative support and the level of examination facilities were fairly consistent between all providers but that there were considerable variation between institutions in the level of the other types of student support. The cost of these other types of support are the subject of this paper.

METHODOLOGY

One of the main aims of this research was to determine the cost to individual institutions of providing student support.

While the authors would have liked to have examined actual costs of each institution, because of the problems of confidentiality and accessibility this has proved impossible. It was decided to base the estimate of costs on the costs that institutions would be likely to incur.

The authors work for the School of Business and Administration at the Open Learning Institute of Hong Kong (OLI) and are familiar with the costs involved in providing student support to distance learning in Hong Kong. The costs included in this paper are based on the authors' collective local knowledge and publicly obtainable costs, such as international airfares.

Since institutions are buying the services they need to provide from the same market, the estimated costs are likely to be very close to actual costs.

The research looked at the level and pattern of costs for the following types of support:

- local tutorials
- academic advice outside formal study sessions
- assignment feedback
- seminars conducted by overseas academics
- library support
- adaption of course material

The estimated costs were then applied to each of the programmes surveyed by the authors so that the differences in costs between those institutions who provided student support and those that did not could be determined.

The study reports on the overall cost of student support for the eighteen MBA programmes.

For other awards our analyses have been restricted to a comparison of the costs per student registration. This was due to the large variation in duration, level and types of programme.

However for both the MBA programmes and individual course analysis we also looked at the total costs of student support as a percentage of student fees.

LEVEL AND PATTERN OF COSTS

Details of the level and pattern of the costs of the types of support examined in this paper are set out in the Appendix to this paper.

Total costs

The mean of the cost per course registration incurred by the institutions in providing the types of student support being examined by this study was $956. The standard deviation was $421.

Details of individual institutions are shown in Figures 1 & 2. It can be seen that there is considerable differences between institutions in the amount of monies expended on student support.

Expressed as a percentage of student fees the cost of the student support considered by this research had a mean of 16% and a standard deviation of 11%. Again the considerable range in the level of expenditure can be seen with individual institutions expending as little as 1% of fees to 46%

The total cost of student support examined by the research incurred by institutions offering MBA averaged $10,640 per graduate and a standard deviation of $4,732. Details of individual institutions are shown in Figures 3 & 4

Again there are considerable differences between institutions.

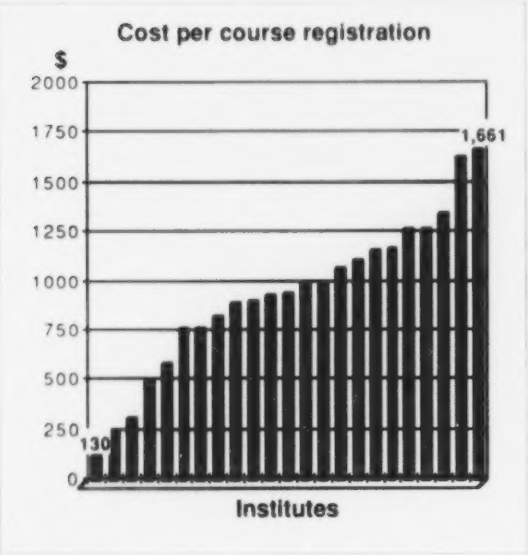
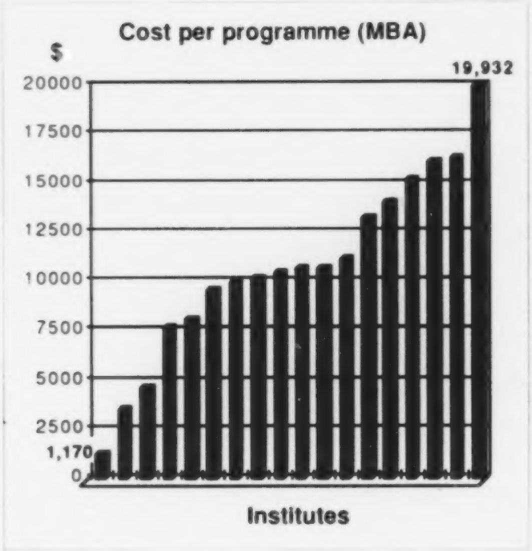


Figure 1



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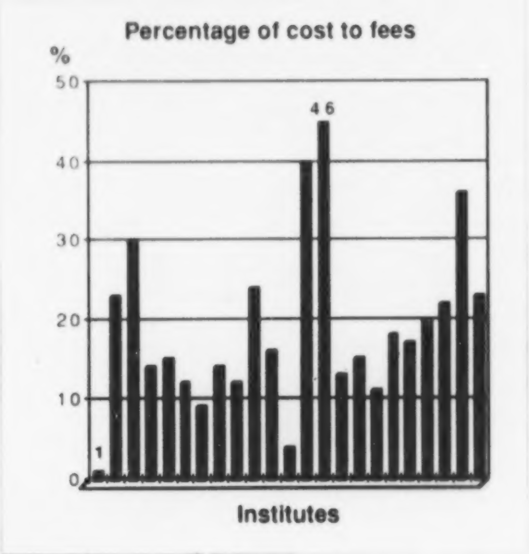

Figure 2

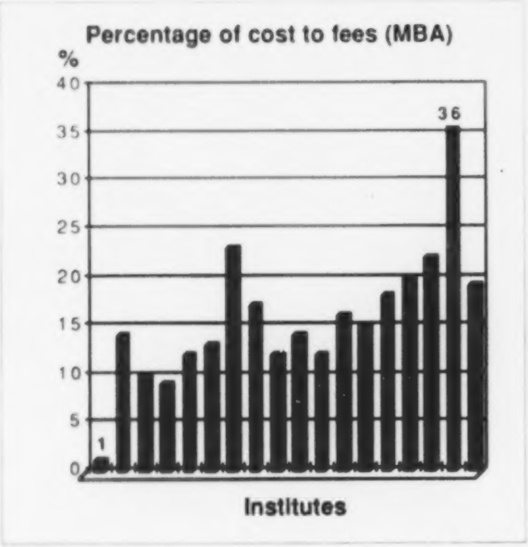

Figure 4

Components of the costs

Seminars conducted by overseas academics

The most expensive type of support per course registration was the cost of seminars which had a mean of $635 per course registration. However, because this cost is fixed it is particularly sensitive to the number of students attending each seminar as well as the number of seminars offered. For example one of the institutions was able to offer a study school each year at a low cost of $396 per course registration simply by attracting sufficient students to bring the costs down.

For those institutions which provide seminars from overseas academics in their MBA programme the average cost per graduate was $7,000 with a standard deviation of $2,600.

Assignment feedback

Assignment feedback was the next most expensive type of student support with an average cost per course registration of $396 and a standard deviation of $92. The average cost per graduate in MBA programmes was $4,226 with a standard deviation of $918.

Academic advice outside formal study sessions

The cheapest form of student support was the cost incurred by institutions providing academic advice outside seminars which cost an average of only $50 per course registration and for the MBA's an average cost per graduate of $475. At such a cheap price it is surprising that only seven of the institutions provide this service to students.

Local tutorials

The cost of providing local tutorials is naturally dependent on the number of hours of tutorials. The mean for all institutions was $218 with a standard deviation of $92 but two institutions paid out over $500 per course registration on tutorials.

Library costs

The approach taken to costing the provision of library facilities resulted in a cost of $133 per course registration for all institutions providing access to a library.

Course adaption

As explained in the Appendix only one institution adapted their course material and it has been estimated that the cost is $200 per registration.

CONCLUSION

This study did not look at the complex questions of the relationship between student support and student success rate or effectiveness in attracting applicants.

However, this study does disclose that institutions can spend anywhere between one to sixteen times the amount on student support per course registration. For an entire MBA programme institutions can spend anywhere from one to nineteen times the amount. The study highlights the large disparity in the amounts spent by various institutions.

Not only does this study show that costs incurred by different institutions differ greatly, it also discloses the extent of the variation to which institutions pass the cost of student support onto students via higher fees. Institutions in our study were found to have spent between 1% and 46% of fees charged on student support.

The question to ask is: "Do potential students recognise the disparity in level of student support and accordingly recognise that they are getting better services from some programmes ?"

Based on our experienced judgement the answer is highly likely a "No".

The implication is that some institutions may get away with offering insufficient levels of student support yet attract large numbers of students with below average fees.

While many institutions do take a responsible attitude to their students there are others who view overseas students simply as revenue generators.

REFERENCE

Back D, Cheng C, Godfrey J & Lam M (1993) "Exporting distance learning: the question of student support" in T Nunan (Ed) *Distance Education Futures* Adelaide, University of South Australia

APPENDIX A: DETAILED COSTS OF INDIVIDUAL COSTS OF STUDENT SUPPORT

Local tutorials

The costs of conducting local tutorials are made up of tutor costs and accommodation costs. Both tutor costs and accommodation costs are variable with the variable factor being the number of hours of tutorial rather than student numbers. Because there are so many local and overseas institutions recruiting part-time staff and using tutorial space there is a well established pricing structure for each of these costs.

In Hong Kong tutors are paid between $300 and $800 per hour. The average for an undergraduate degree would be $400 and $500 for masters degrees and these are the costs we used in this paper.

Tutorial accommodation costs vary considerably depending on the location where the tutorial is held. Averages of the costs of various types of space per hour are:

School (no air conditioning)	80
School (air conditioned)	120
University and polytechnic space	150
Seminar room	200
Hotel	400

Although some offshore providers do use schools as the location of their local tutorials these are normally unacceptable to Hong Kong students as they are normally furnished in a manner which makes students interaction difficult

We have therefore chosen to use $150 per hour as the likely cost of tutorial accommodation.

To summarize tutorial costs vary with the number of hours of tutorials rather than the number of students and therefore costs will largely be dependent on the number of hours of tutorial and the number of students in each tutorial group.

In this study we have used a total cost of $550 per hour for undergraduate programmes and $650 for postgraduate tutorials and an average class size of thirty students. The number of hours of tutorial actually taught by each institution have been applied to these factors to determine the total cost of local tutorials.

Academic advice outside formal study sessions

The earlier study indicated that when advice is available there are two types of academic advice that are provided from local tutors and from overseas academics located overseas.

Given that each institution has to employ staff to have overall responsibility for the conduct of courses the additional cost of advice being provided by overseas academics is an opportunity cost rather than a cash cost. In this study opportunity costs have been ignored and in any case the opportunity cost of overseas academic providing advice is thought to be so small that it has little or no impact on the overall costs of a programme.

Local tutors proving advice outside formal study sessions are normally remunerated on the basis of a fixed cost per tutorial group. The OLI is the market leader in providing this service to Hong Kong students and OLI's price sets the pattern for other providers. The OLI's costs of $1500 per tutorial group of 30 students per year have therefore been used in this study.

Assignment feedback

This cost is variable.

The earlier study carried out by the authors indicated that when assignment feedback was provided it took one of two forms. The first was qualitative feedback and marks and the second was marks only.

The fee paid in Hong Kong for qualitative and quantitative assignment feedback averages $112 per assignment while marking without comment has an average cost of $60 per assignment.

The overall cost of assignment feedback per student is determined by the number of assignments per course and the number of courses in a programme. While it was possible to determine the number of courses for each of the programmes we examined it was impractical to determine the number of assignments in each of the hundreds of courses making up these programmes.

In this study we have therefore used an average of four assignments per semester course.

Seminars conducted by overseas academics

Unlike many of the other costs involved in this study the cost of conducting seminars is not influenced by the number of students but is a fixed cost per course.

As indicated earlier this study ignores opportunity costs and therefore we have not attempted to cost the opportunity cost of an academic coming from overseas to conduct a seminar. We do acknowledge that the cost could be considerable.

The cash cost consists of the airfare, accommodation and meal cost and the cost of the venue for the seminar. We have calculated what we estimate to be the actual cost for each of the institutions and have divided this by the average number of students who attend these seminars to determine the cost per course registration..

Library support

Local institutions charge a sum per student for the use of their library and in this study the average cost charged has been used. This amounts to $133 per course registration.

Adaption of course material

The cost of course adaption is a fixed cost and can vary considerably dependent on the extent to which a course is changed. The cost can be as little as $30,000 per course to as much as $1 million.

Luckily for the authors only one of the institutions made any attempt to change their course material for Hong Kong students and their changes were superficial. Based on the costs incurred by OLI it has been estimated that the cost of adaption of each course for this institution was about $50,000 and based on estimated student numbers and the estimated life of the material a cost per course registration of $200 is considered to be reasonable.

Improving the Economics of Budget Allocation in Distance Education: a Case Study of Korea Air and Correspondence University

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ABSTRACT

The purposes of this paper are to analyze the past 10 years' budget allocations of KACU, identify major investment areas, clarify the economics of KACU's budget allocation as a distance education system, and suggest fundamental principles for future budget allocations to enable KACU to become a leading open distance teaching university.

When examining the budget allocations for the educational activities, the infrastructure, and the student support services of KACU, no clean evidence is found to support the ideas that more funds have been spent in establishing strong media structures for distance teaching, decentralized student support systems, and cost-efficient administrative structures.

At the end of the paper several suggestions to improve the economics of budget allocations for an open distance teaching university were made.

INTRODUCTION

The Budget allocation of an institute tells us where an institute places its prionties in its policies and philosophies. By closely examining the budget allocations of an institute, one can clarify the directions toward which the institute has been and will be heading. It is argued that the Korea Air and Correspondence University (KACU) has tried to allocate its budget, which comes from two sources--the government and KACU revenues-- according to its future development plans as an open and life-long educational system. As we will soon enter the 21st century, it is imperative that we carefully analyze the trends of our budget allocations in the past, identify problems that have arisen, and suggest future directions for better use of our resources.

The purposes of this paper are to analyze the past 10 years' budget allocations of KACU, identify major investment areas, clarify the economics of KACU's budget allocations as a distance education system, and suggest fundamental principles for future budget allocations to enable KACU to become a leading open distance teaching university. A framework for analyzing the budget allocations of a distance education system will first be developed. Then trends that show how the budget has been allocated over the past 10 years will be identified and explained according to the framework. Finally, suggestions will be made on how to improve the economics of budget allocation to foster an open learning institute which provides quality higher education to the people.

FRAMEWORK FOR ANALYSIS

It has been recognized that differences exist between distance teaching universities and conventional universities in various aspects. The differences between these two types of universities seem to be found not in the kinds of work they are performing but in the degree of emphasis they are putting into a certain kind of work. For example, even though distance teaching universities and conventional universities both utilize the media for instructional purposes, the former makes greater efforts to utilize the media more effectively and efficiently in their teaching-learning process.

For the purposes of this paper, the kinds of work that are important in educational settings are categorized into the following three areas: 1) educational activities, 2) administrative system /infra structure, and 3) student support system.

Educational activities are those which are essential in maintaining and managing the teaching-learning processes of an educational system. The budget which covers educational activities include funds for courses or development of course materials and delivery (Radio/TV programs, face-to-face instruction, laboratory work, supplementary handouts, etc.); research and training for the academic staff; evaluation for students' performances; and book purchases. Distance teaching universities put more emphasis on course material development, mass delivery systems and research related to the educational use of the media.

In a distance teaching university, an effective, efficient administration and infrastructure are more improtant than they are in a conventional university because of the number of students it serves and the various teaching methods it adopts. The budget for administration or infrastructure cover personnel, facilities, and the computer system, including the networking structure among university-related places. Especially the computer system is given more attention by distance education universities than by ordinary universities.

The student support system is important in any university. In distance teaching universities, the management of study centers and counselling services are more important than any other student support services.

These three categories are applied in identifying trends of KACU's budget allocations over the past 10 years. Major limitations in this work are as follows: 1) The categorization of items used in this study may not be identical with that used in official university budget allocation documents. Some of the items found in the university documents are not included in this study because of their irrelevance to the study purposes and other items have been combined for the analysis. 2) The budget for printed text development can not be included in this analysis because printed texts are developed by an independent printing company under a separate budget from the university budget. 3) Even though the university newspaper is playing an important role in educational activities at KACU, its budget cannot be included in the analysis because of the same reason stated in 2).

ANALYSIS OF BUDGET ALLOCATION (1984 -1993)

Categorization

Under the three categories, several items are included. The following list shows the categorization for the analysis of budget allocations at KACU.

1. Educational Activities : Research, Book purchases, Training Course material development and delivery(TV/Radio/supplementary/materials/newmedia/schooling/laboratory work), Evaluation
2. Administration or Infrastructure : Personnel Facilities, Computer system
3. Student Support : Study centers, Counselling, Scholarships

Overview of trends in budget allocations

The KACU budget comes from two sources - the government and students' fees. Table 1 shows the expenditures by source of revenue since 1984 to 1993.

year	Gov't subsidy	Students' fees
1984	$6,705,349 (40.8%)	$9,748,275 (59.2%)
1985	$8,131,802 (40.2%)	$12,079,468(59.8%)
1986	$8,060,065 (40.6%)	$11,673,387(59.4%)
1987	$8,792,573 (41.7%)	$12,282,337(58.3%)
1988	$10,001,514(43.3%)	$13,101,178(56.7%)
1989	$12,062,216(51.6%)	$11,298,837(48.4%)
1990	$13,681,835(50.3%)	$13,516,231(49.7%)
1991	$12,445,008(44.9%)	$15,282,191(55.1%)
1992	$13,789,000(40.8%)	$19,983,000(59.2%)
1993	$15,455,202(37.9%)	$25,348,150(62.1%)

Table 1 : Expenditures by source of revenue

Note that the proportion of students' fees has increased to over 62% in 1993, which indicates that a more flexible budget allocation can be achieved at the university level.

The ten year trend in budget allocations on educational activities are shown in Figure 1.

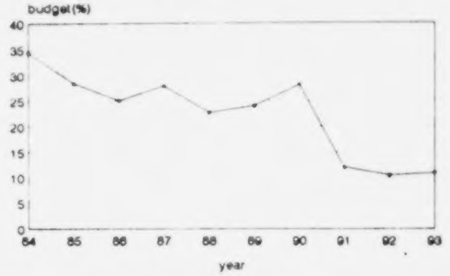


Figure 1: Trends in the budget allocation for educational activities (% of total budget)

From the figure, it can be noticed that from 1990, the budget allocation for educational activities have been drastically decreased (30.4% in 1984, 16.2% in 1990, and 15.4% in 1993). From the year 1990, no funds for TV and Radio program producations were needed from KACU because KACU's production function was assigned to the Educational Broadcasting System (EBS) and thus EBS has been responsible for procuring the necessary fund for KACU program productions since 1990.

Figure 2 shows the trends in the budget allocation for KACU's infrastructure over the past 10 years. In 1993, about 65% of KACU's total budget was allocated for this category. From 1991, a greater number of academic staff members has been recruited than before. And especially in 1993, a large amount of funds was saved to purchase broadcasting and computer facilities.

Figure 2: Trends in the budget allocations for KACU's infrastructure

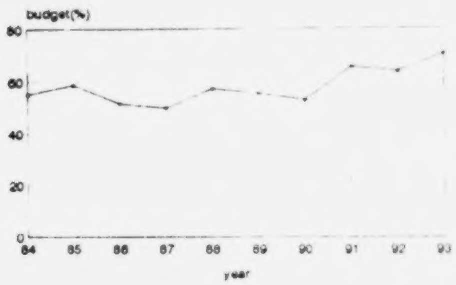
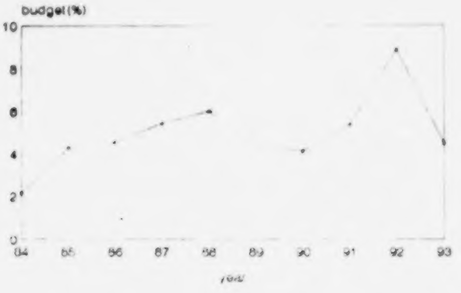


Figure 3 indicates the ten year trends in the budget allocation for the student support system. Compared to the funds for maintaining the infra- structure of the university, the funds allocated for the student support system has been found to be moderately small. Except for 1992, less than 10% of the total budget has been allocated for student support each year. In 1992, the fund for managing study centers was almost doubled compared to the other years (3.8% in 1991, 6.9% in 1992) because of the expansion of their functions.

Figure 3: Trends in the budget allocations for the student support system



Major investment areas

Under the category of educational activities, there has been a tendency for more money to be spent in research, book purchuse, student evaluation and supplementary text materials since 1990 (Figures 4 and 5). In the year 1993, a significant amount of funds was allocated for the research and development of new media system such as computer-mediated communication and a multi-media production system. These figures show that KACU has begun to pay more attention to media-related research and experimental development.

Figure 4: Budget allocations for educational activities I

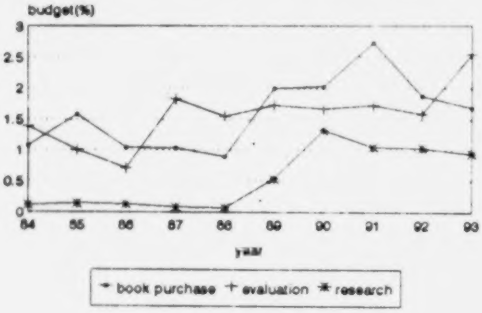
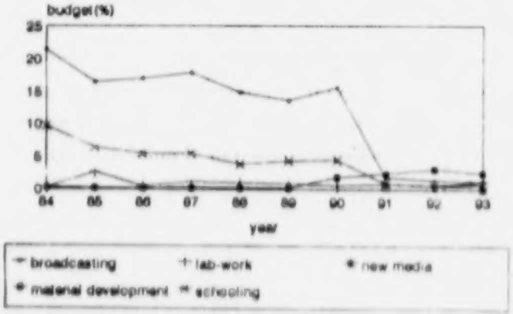
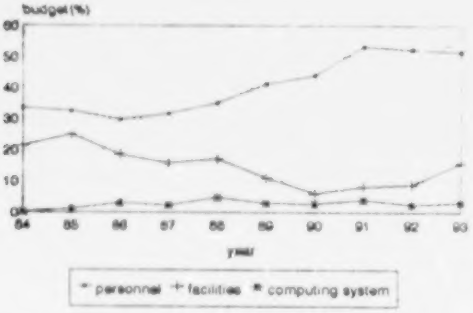


Figure 5: Budget allocations for educational activities II



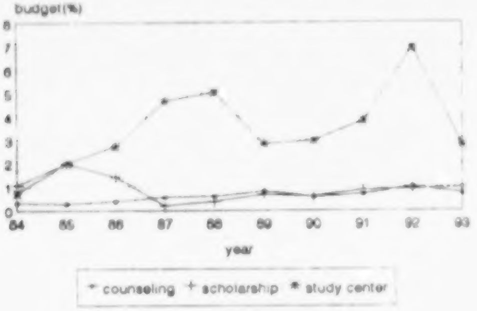
The budget for maintaining the infrastructure of a social system is comprized mostly with fixed costs. In a distance teaching university, fixed costs are usually higher than variable costs. Of the total budget 45 - 65% has been allocated in maintaining the infrastructure of KACU for the past 10 years (See Figure 2). As was pointed out before, since 1991 a larger budget has been allocated to support the personnel of KACU because new academic staff members and technical professionals with more experiences have been recruited. Except for the increase in budget for personnel and facility purchases in 1993, no significant investment areas to economize the infrastructure of the university are found (Figure 6).

Figure 6: Budget allocations for the infra- structure



The student support system is the key element in distance education and it is the interface between a university and its students. Since distance education is based on a self-learning system, it is important for a distance education institution to provide learning support services to its students. As mentioned above, not much funds have been provided to support the 12 regional study centers and 27 local study centers which have been responsible for direct teaching-learning services to KACU students (Figure 7). However, it is anticipated that more fund will be allocated to support those study centers since the university is implementing decentralized management policies from 1993.

Figure 7: Budget allocations for the student support system



DISCUSSIONS AND SUGGESTIONS

KACU has aimed at establishing a flexible open higher learning institute through distance teaching methods. Reddy (1992) argues that "open learning systems aim to redress social or educational inequality and to offer opportunities not provided by conventional colleges or universities. In this system, restrictions on learning are fewer than those in formal educational institutions." Major characteristics of an open distance teaching university include separation of the teacher and learner, development of student support services, the use of a variety of media, the provision of interaction between teacher and learner, and the emphasis on individualized autonomous learning. Because of these characteristics, the cost structures of conventional and distance teaching universities become quite different from each other. In distance teaching institutes, costs such as salaries of course developers, managers, and counsellers; computing costs; production equipment costs; and maintenance costs are higher than those for conventional universities because labor-centered direct face-to-face learning is replaced by capital-centered distance learning.

When examining the budget allocations for the educational activities, the infrastructure, and the student support services of KACU, no clear evidence is found to support the idea that more funds have been spent in establishing strong media structure to support distance teaching. Rather, costs for personnel have been increased. This indicates increases in the labor-centered activities of the university.

A decrease in schooling sessions has led to a decrease in budget allocations for schooling activities. But no indications of any major fund increase in supporting interactions between teacher and learner or in strengthening media system of the university to compensate schooling functions are noticed.

As a system is decentralized, more support has to go to its subsystems. Since KACU has tried to establish a decentralized system in implementing teaching-learning activities, managing administrative functions, and evaluating students' performances; more investments are necessary to link networks between headquarters and study centers via computer systems. In addition, more funds have to go to student support services in regional and local study centers.

From the above discussions, several suggestions to improve the economics of budget allocations for an open distance teaching university can be made. First of all, investments in advanced technology-based facilities such as a computer network system is needed to cope with the huge number of students more effectively and efficiently. In addition, facilities for of materials development and delivery need to be well-maintained and up-dated each year since teaching and learning take place through materials in distance education.

Secondly, more funds have to be allocated to supporting students' self learning activities rather than providing students with direct teaching services. Counselling and tutoring systems which can provide quality services to many students in study centers at a low cost would be an important area of investment.

Thirdly, investments for the introduction of an interactive media system would improve the economics of budget allocation in distance education. New media system such as computer-mediated communication or DBS has proven to be cost effective if a large number of users are involved. It is also argued that new media can provide students with learning opportunities similar to face-to-face interaction.

Finally, in addition to the investments for teaching and learning activities, investments for research and development--especially in the fields of media use, self-learning mechanisms, and performance evaluation--are required.

REFERENCES

Kim, S.H. (1992). *Distance education in Korea.* UNESCO AND NIME research report. Seoul.

Korea Air and Correspondence University brochure (1993).

Reddy, R. (Ed.)(1992). *Open universities: the ivory towers thrown open.* New Delhi: Sterling Publishers Private Limited.

Rowntree, D. (1992). *Exploring open and distance learning.* London: Kogan Page Limited.

KACU budget allocation documents between 1984 - 1993, Seoul: Institute of Distance Education.

1992 KACU yearbook: 20 yrs' anniversary, Seoul: Institute of Distance Education.

The Comparative Cost of Distance Education: the Relevance of Scale

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ABSTRACT

The development and widespread adoption of techniques for costing distance education mean that there are now available data sets on the costs of a variety of institutions, and programmes. Although the data are limited we have some information on the comparative costs of on- and off-campus work at bimodal universities and at open universities. Work has also revealed that part-time students face significant opportunity costs.

The data provide some answers to questions about the scale at which distance education is at an economic advantage or disadvantage as compared with conventional education. Much of the discussion of this issue has been theoretical and some data, from a variety of countries, are set out in order to provide a factual basis for further discussion. Conclusions are drawn on scale and on policy implications for distance education and its financing.

THE COST PROBLEM

Distance education has been acclaimed for a number of supposed virtues; among the respectable and well-established are its ability to reach students who might otherwise not have access to education. Among the more tricky is the claim that it can educate students more cheaply than is possible through face-to-face education. It is tricky in at least two ways: because of the conceptual and practical difficulties in answering it, and because there are educators who would like to have an educational technique judged on its educational or social merits as well as on its economic ones.

Over the last two decades theoretical and empirical studies have yielded some answers to the simple question: is distance education cheaper or dearer than conventional education? There has been widespread use of what is becoming a standard methodology for cost analysis, as developed by Jamison, Klees and Wells (1978), Unesco (1977) and Orivel (1987). Their techniques, which require an examination of capital as well as recurrent costs, make possible comparisons between conventional and distance education even though the two differ in the significance of their capital and recurrent elements. Some of the data from empirical studies appear in table 1. We need to begin by noting their limitations.

THE LIMITATIONS OF THE DATA

There are several. The quality of the data is varied; individuals and institutions have undertaken costings for a variety of purposes and using a variety of techniques. In particular, while post-hoc costings done in the interests of economic analysis have often included an examination of the costs of capital, institutional studies have often looked only at recurrent costs. Similarly, analysis of the costs of conventional education varies in its sophistication.

Comparisons are also difficult because institutions differ widely. There is no one form of distance-teaching institution and different institutions use different mixes of teaching methods. As the cost of a distance-teaching programme is, in part, a function of its choice of teaching media, so it may be misleading to lump together evidence from different teaching systems. (Nor can we assume a simple relation between cost and technological simplicity: the National Technological University may display favourable costs, especially if opportunity costs are taken into account, despite its reliance on satellite technology (cf. Bih-jen Fwu et al. 1992).) Conventional institutions also differ widely in the balance of subjects taught and the comparative emphasis they give to teaching and research.

Even where information is available, there are difficulties in comparing costs and effects. We rarely have matched groups of students studying at a distance and conventionally and cannot easily disentangle effects to be attributed to the method of study from effects due to differences between the audiences. A further weakness of the data is that few studies have quoted graduation rates. British Open University data are available. A number of Australian studies (Sheath 1965, p.44, Jevons 1982, p.127, Hudson Report 1986, pp 96-7) quoted graduation rates between 33% and 69% Apart from some studies of teacher training we have few other graduation rates.

Country, institution and date of studies	Approx annual enrolment	Cost in 1988US$$[a]		Measure of success		Comparison between distance and conventional education
		per student per annum	per graduate	measures used	rate %	
Australia: Deakin University 1989[b]		2252[c]				Cost per student 97.5% of cost of on-campus student
Australia: 8 Distance Education Centres 1990[d]	2750-9125[e]		3805-5802			External recurrent costs per external student 1-10% lower than internal
Britain: Open University 1989[f]	25 000	2018	13 641 ord BA 19 091 hons BA			Cost per graduate lower than cost at conventional university[g]
Britain: Doncaster Institute of Higher Education 1977/78[h]	75	1262	8005	Final exam passes as proportion entrants to 3-yr course	52	Cost of gaining professional qualification 60% of conventional course costs
Britain: South West London College 1977-78[h]	150	882	5040	Final exam passes as proportion entrants to 2-yr course	35	Distance teaching cheaper than evening classes, dearer than day release
Canada: Athabasca University 1979-80[h]	4400	1307				Costs within the range for conventional Alberta universities
Costa Rica: Universidad Estatal a Distancia 1980[h]	8150	1099				Cost per student lower than at conventional universities per credit comparable with larger conventional universities
Indonesia: Open University teacher trg 1988-89[i]	5000	584				Cost about 60% of conventional course
Israel: Everyman University 1978[j]	8000	1245	9421	Graduates as proportion of enrolment	forecast 37.5	Cost per graduate estimated at half cost conventional university
Japan: University of the Air[k]	3600	1810	20 016			Cost per graduate lower than at national university but higher thar private or correspondence programn
Kenya: University of Nairobi BEd 1989[i]	151	795				Cost thought to be lower than cost of full-time equivalent
Nigeria: COSIT, University of Lagos 1988[i]	2000	253[c]	946			Cost slightly lower than cost on campus
Pakistan: Allama Iqbal Open University PTOC 1976-86[i]	8360		78-108	Successful completion rate	37.9	Cost per AIOU graduate 45-70% of conventional
Sri Lanka: National Institute of Education 1984-88[i]	5000		84			Cost 1/6 to 1/3 of alternative
Tanzania: Teacher training at a distance 1979-84[i]	15 000	1352	5309	Successful completion rate	93	Cost about half conventional education
Unites States: National Technological University[l]	3640	2900[m]		Course completion rate	85	Breakeven point at enrolment 9000 students on 200 courses

Table 1: Some costs and success rates for tertiary-level distance education

Notes

a. Costs generally converted to 1988 US$$ using exchange rates and deflators in World Bank 1991 World Tables. Costs are converted into US$$ using the exchange rate for the year being reported and then converted to 1988 US$$ by using the US overall (GDP) deflator. b. Deakin University 1989. c. Recurrent costs only per full-time student equivalent. d. Harman 1991 Enrolment and cost figures are for full-time equivalent student units; for conversion purposes they have all been treated as 1989 data. e. Figures appear to be total full-time student equivalent enrolment, not annual. f. Open University 1991. g. Horlock 1984 calculates cost at 62% cost arts degree at conventional university with an OU graduation rate of 57%. His calculations give a 1981/82 cost of $15 022 per graduate h. Perraton 1982b pp 30-1 (where fuller references are cited). i. Perraton 1993 pp 386-7. j. Melmed, Ellenbogen, Jamison and Turninasky 1982. k. Rumble 1992 and Muta and Sakamoto 1989, taking their figures as in 1985 currency. l. Bih-jen Fwu et al. (1992). m. Cost for 3-unit course apparently in 1989 $$.

There are further difficulties if one wants to put alongside the costs the benefits either to individuals or to society of study at a distance. Some of these difficulties arise from the opportunity cost of studying and from considering the quality of different forms of study. But there is a simpler point too. If we take a narrow view of the benefit to society of a distance-education programme, then we must take account of Mace's point (1978), that mature students spend less time in the work force than those who graduate in their early twenties.

WHAT THE DATA TELL US

Given all these caveats, we can draw some conclusions from the data. First, if we look at the cost per graduate, then the fairly limited data suggest that large open-university programmes may well produce graduates at a considerably lower cost than conventional institutions but the smaller programmes (e.g. the programmes at the Universities of Lagos and Nairobi) are less assured that they will do so. The, quite old, British figures from South West London College suggest that even a quite unsophisticated programme of distance education could work out at more expensive per graduate than the cost of a part-time, day-release, course.

The Australian data are particularly interesting: while, as an act of policy, similar resources are devoted to students whether on or off-campus, so that costs per student are very similar, graduation rates for part-time students, irrespective of the mode of study, are lower than for full-time ones. It follows that we must expect the cost per graduate of Australian distance education to be higher than that of conventional education.

Second, the costs of programmes of teacher education appear to compare well with alternatives. To some extent, in Pakistan or Tanzania for example, this is because they were operating at a large scale and often achieved high successful completion rates. But it also reflects the relatively high costs of conventional teacher education (a point noted by Lockheed and Verspoor 1991).

Third, we so far have little data about graduation rates at the large open universities in Asia (cf. Coffey et al. 1987, p.51); until more are available the story of costs, and the practicability of offering cost-effective education on a large scale at this level is only half-told. Early figures from the Sukhothai Thammathirat Open University in Thailand suggested that the cost per student and cost per graduate should compare favourably with those of conventional universities (Wichit and Tong-In 1985 and Coffey et al. 1987, p.47): we badly need more data.

Fourth, there are considerable opportunity costs for students in undertaking part-time study. Some of the costs are social: students spending less time with the children, their spouses or their friends. Some, easier to quantify, are financial. While economists can estimate a shadow cost for students' time, teachers doing a part-time degree in both Kenya and Nigeria reported that they were using time that they could otherwise have spent doing private, paid, tuition (Perraton 1993, p. 288).

IMPLICATIONS FOR POLICY

The data do not provide an unequivocal answer to questions about the relationship between the scale of operation and the costs of distance education. But, as far as they go, they suggest that a number of tertiary-level distance-education programmes (alike in Australia, Britain, Kenya and Nigeria) have run at a scale and in a way which make their costs relatively high in contrast with conventional education. Using Rumble's (1992) term for the 'competitive vulnerability' of open universities it appears here that some dual-mode programmes are vulnerable because of their small scale.

That vulnerability may be increased if we move away from easy measures of cost, or even of graduation rates, and consider the quality of our students' educational process. Muta and Sakomoto (1989) and Rumble (1993) have compared the costs for the University of the Air in Japan with various alternatives. Similarly the figures here suggest that one might compare costs per graduate through the Open University and at Doncaster or South West London. But many educators will see such comparisons as legitimate only if one also asks about the comparative quality of learning. While we are short of research on this, the richness of the support which has characterised good open-university practice is to be valued. There is a research challenge here: to examine the quality of the educational process and seek indicators that are more subtle than those of cost analysis or the simpler forms of academic audit. (Barnett 1992, writing mainly about conventional education, may suggest a way forward here).

National and institutional policies vary on student fees. In many countries it has been usual for higher education to be made available free to full-time students who go straight on from school to university. Most programmes of teacher education have not charged fees. In contrast, part-time degree students have often been charged fees, partly on the assumption that they were earning and could afford to pay. But a number of difficulties follow. If fees to students are too high, many of them will be unable to enrol. Nielsen and Tattto (1993, p.119) cite evidence in Indonesia where the level of fees led to an increase in the drop-out rate. If, on the other hand, fees are kept low and distance-teaching institutions have little other funding, they will be hard-pressed to fund the support service which is likely to keep up completion rates and raise the quality of study. A well-thought-out policy is likely to take account of likely graduation rates and of students' ability to pay the various costs of study. It may, too, take account of the benefit to society of the graduates' additional education: another under-researched topic is the return, in human-capital terms, to part-time education. Beyond that, a policy might, too, take account of the more intangible importance to society of there being effective, open and attractive opportunities for part-time study.

REFERENCES

Barnett, R (1992) *Improving higher education* Buckingham: Society for Research into Higher Education and Open University Press

Bih-jen Fwu et al. (1992) 'The National Technological University' in ed. Rumble, G and Oliveira, J *Vocational education at a distance* London: Kogan Page

Coffey, J et al. (1987) *Commonwealth co-operation in open learning: final report* International Extension College and Council for Educational Technology, London

Deakin University (1989) *Further investigations into activity costing in a mixed mode institution* n.p.: Department of Employment, Education and Training

Harman, E J (1991) *The cost of distance education at Australian Distance Education Centres* Canberra: Department of Employment, Education and Training

Horlock, J H (1984) 'The Open University after 15 years' (Paper read to the Manchester Statistical Society, 17 January 1984) mimeo

Hudson Report (1986) *Review of efficiency and effectiveness in higher education; report of the committee of enquiry* Canberra: Commonwealth Tertiary Education Commission

Jamison, D T, Klees, S J and Wells, S J (1978) *The costs of educational media* Beverly Hills: Sage

Mace, J (1978) 'Mythology in the making: is the Open University really cost effective?' *Higher Education* 7

Jevons, F R (1982) 'How different is the distance student' in ed. Daniel, J S, Stroud, M A and Thompson, J R *Learning at a distance: a world perspective* Edmonton: Athabasca University/ICCE

Lockheed, M E and Verspoor A M (1991) *Improving primary education in developing countries* Oxford: Oxford University Press

Melmed, A S, Ellenbogen, B, Jamison, D T, and Turninasky U (1982) 'Everyman University in Israel: the first two years' in Perraton 1982a

Muta, H and Sakamoto, T (1989) 'The economics of the University of the Air of Japan revisited' *Higher Education* 18:5

Nielsen, H D and Tatto, M T (1993) 'Teacher upgrading in Sri Lanka and Indonesia' in Perraton 1993

Open University (1991) *Review of the Open University conducted by the Department of Education and Science and the Open University* Milton Keynes: Open University

Orivel, F (1987) 'Costs and effectiveness of distance teaching systems: a methodological approach' (mimeo) Dijon: IREDU, Université de Bourgogne

Perraton, H (1982a) *Alternative routes to formal education* Baltimore: Johns Hopkins University Press

Perraton, H (1982b) *The cost of distance education* Cambridge: International Extension College

Perraton, H (1993) *Distance education for teacher training* London: Routledge

Rumble, G (1992) 'The competitive vulnerability of distance teaching universities' *Open learning* 7:2

Sheath, H C (1965) *External studies - the first ten years* Armidale: University of New England

Unesco 1977 *The economics of new educational media* vol. 1, Paris: Unesco

Wichit Srisa-an and Tong-In Wangsotorn (1985) 'The management and economics of distance education: the case of STOU Thailand' Paper presented to ICDE Conference Melbourne, 13-20 August 1985

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Some Economic Aspects of Conventional and Distance Education Systems in India

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ABSTRACT

This paper makes an attempt to compare the costs of open universities and conventional university colleges in order to identify the cost factors, cost-effectiveness and the level of operation of the economies of scale in both the systems. The paper begins by explaining the need and emergence of distance education in India. After explaining the cost factors the paper compares the unit costs of 3 open universities and a sample of 79 conventional university colleges. The results indicate that the unit costs of open universities are cheaper by 14% to 40% than the costs of conventional system. The simulations indicate that the cost per graduate in open universities will be cheaper even at higher drop-out rates. The paper also identifies the need to improve the internal cost-efficiency of the open university system.

INTRODUCTION

During the last four decades, in India, there has been a significant growth in terms of social demand and public investment in higher education. In 1950-51 there were 25 Universities and 695 Colleges with 21,264 Teachers and 1.74 lakhs Students. In 1991-92 there were 180 Universities/Deemed Universities and 7513 Colleges with 2.70 lakhs Teachers and 46.11 lakhs Students (UGC, Annual Reports). This increase reflects the growing social demand for higher education in this country. Nevertheless, only 7 percent of the relevant age group are enrolling for higher education (UNDP, 1993). Although, this coincides with the average of all developing countries, it is no where near the industrial countries (45%) or world average (16%). This indicates a lot of scope and need for expansion of the higher education in this country. The public expenditure was about 3.2 % of the GNP in 1988-90 of which 17% accounts for the higher education (UNDP, 1993). Also, the investment on education from various sources was about Rs. 114 crores in 1950-51. This has been increased to Rs. 20351 crores in 1990-91 (Kulandai Swamy, 1993b). Therefore, the raising costs of conventional education coupled with the increases in social demand are posing problems for a country which is attending to other pressing developmental activities.

With the result, a number of institutes for correspondence courses have been started by the conventional universities. Today, there are about 41 conventional universities offering correspondence courses in the dual mode system. The enrolement in these correspondence institutions accounts for about 12.05% (5.56 lakhs students) of the total enrolement in 1991-92. Although, these institutes are meeting the increases in the social demand to some extent, most of them followed a system of producing the learning materials as cheafly as possible and enrolling as many students as possible. As a result, many of them have not employed multi-media approach and most often class room lecture notes are given to correspondence students which are not in self-instructional form and hardly with any student support services. Also, most of these institutes are offering the same courses offered in the conventional system.

Meanwhile, the concept of correspondence education has changed to distance education with the establishment of 5 Open Universities; one at national level and the other 4 at state level. In the year 1991-92, there are about 1.23 lakhs students (2.66% of the total enrolement) enrolled for various programmes in these universities. These universities have started with fully exploiting the technological advancements. The concept of multimedia instructional system has emerged. High investments were made in developing multi-media instructional materials. These costs are incurred irrespective of student numbers. Therefore, educationists and policy makers saw the significance of distance education which can be offered at lower unit costs and at the same time keeping the quality of higher education.

This paper analyses the costs of Indira Gandhi National Open University (IGNOU) and compares them with Dr. B.R. Ambedkar Open University (BRAOU), Hyderabad; Yashwantrao Chavan Maharashtra Open University (YCMOU), Nasik; and a sample of 79 Conventional University Colleges (CU Colleges) spread over 6 States.

DETERMINANTS OF COSTS

In a conventional system some of the main determinants of costs are the teacher-student ratio and the salaries of the teachers. According to a recent study (Pillai and Naidu, 1993), in India, the salaries of the staff accounts for nearly 91% of the total annual recurrent expenditure in 1989-90 (teachers 72% and support staff 19%)(Table 1). Therefore, the teacher-student ratio, salaries of the teachers and their qualifications are the main reasons in determining the costs of conventional education system.

	Year	Distribution of Costs		
		Salary	Nonsalary	Total
IGNOU	1991-92	33.42	66.58	100.00
BRAOU	1989-90	39.88	60.12	100.00
YCMOU	1990-91	30.29	69.71	100.00
CU Colleges	1989-90	90.96	9.04	100.00

Table 1 Distribution of Salary and Nonsalary Recurrent Costs

However, in a distance education system apart from the salaries of the teachers a number of other factors are influencing significantly in determining the costs. Some of these factors are the development, production, duplication, and distribution costs of printed materials, production and transmission costs of audio and video materials, establishment of study centres, counseling charges and other support services provided to its students. Also, contrary to the conventional education system, in a distance education system the nonsalary costs accounts for a major share in the annual budget. These nonsalary costs include the printing and distribution of printed materials, production and duplication of audio and video materials, evaluation of assignments and answer scripts, conducting examinations etc. For example, in 1991-92, IGNOU has spent about 67% of the annual recurrent costs on items other than salaries of the staff. A similar pattern of expenditure is observed in other state open universities (see, Table 1).

Most of the courses in IGNOU are credit related. A credit is defined as equivalent to 30 study hours of a student. The development costs of printed materials include the cost of internal faculty and external course writers/editors, and the production costs include the cost of word processing, designing and composing of text etc. which are fixed and do not vary with the number of copies printed. In 1989-90 the development and production costs of an 8-credit course was estimated as Rs. 3.20 lakhs. In addition, the printed materials are supplemented by both audio and video programmes. The cost of an video programme of 25 minutes length was about Rs. 0.56 lakhs and that a 15 minutes audio programme Rs. 5 thousand. The cost of a video programme is almost 10 times to that of an audio programme. On an average there are 3 video programmes and 4 audio programmes for an 8-credit course. Therefore, the fixed costs of printed material, audio and video programmes for an 8-credit course are in the ratio of 63:33:4 and the choice of the proportion of these media will have varying degree of impact on the economic costs of the university. In addition the university incurs some expenditure on the maintenance of courses on offer. All these costs are course related. On the other hand, the costs of duplicating and distributing the learning materials, student counselling and other student support services are student related. The costs which are not directly contributing to the above cost determining factors are treated as overhead costs. In 1991-92 of the total annual recurrent costs IGNOU spends about 43% on the development, production, duplication and distribution of student learning materials, 25% on student support services and 32% on institutional overheads. Table 2 explains the growth of some of the factors determining the costs of IGNOU since its inception.

	1987-88	1989-90	1991-92	1992-93
Programmes	7	30	37	44
Courses	30	119	253	299
Enrolement	16811	48281	62375	75666
Regional Centres	8	13	16	16
Study Centres	95	133	201	220
Audio Programmes	85	292	425	538
Video Programmes	67	212	325	396
Recurrent Expenditure (Rs. in Lakhs)	108	743	1125	1540

Table 2 Some Cost Determinants: IGNOU

COMPARISION OF UNIT COSTS

Some of the problems associated with directly comparing the costs of distance education system with conventional education system are the variations in the quality of teaching standards and the differences in the characteristics of the students. These standards can vary not only between two systems of education but also between institutions of the same type (Rumble, 1986). However, there is no evidence to show that the quality of distance education, particularly in the case of IGNOU, that the quality of instructional materials are in any way different from the conventional education in India.In fact, in recent years, the quality of the material developed and produced by IGNOU has received recognisation not only within the country but also by universities in other developing and developed countries. Many of the conventional university students are using IGNOU materials for their regular studies and other competitive examinations at the national level. All the state level open universities in India; Open Learning Institute, Hong Kong; Athabasca Open University, Canada; and Sri Lanka Open University are using IGNOU materials for some of their courses.

As far as the criticism on the differences in the students characteristics and their standards are concerned as, Rumble rightly pointed out, distance education may be the only practical way in reaching some target groups (Rumble, 1986). This is particularly relevant for a country like India, where many stratums of the population are deprived in getting access to the conventional education because of their socio-economic backgrounds. Therefore, both the conventional educational system and distance education system are two alternative ways of achieving the same objective and the comparision of costs is necessary in identifying the system with lowest unit cost.

Table 3 sets out the per student annual recurrent costs of different open universities and conventional university colleges. It can be seen that the per student cost of the IGNOU, YCMOU and BRAOU are 37.7%, 40.4% and 14.2% of the Conventional Universities colleges costs.

	1989-90	1990-91	1991-92
IGNOU	1750 (42.2)	1692 (35.5)	2046 (37.7)
BRAOU	695 (16.8)	706 (14.8)	777 (14.2)
YCMOU	----	----	2214 (40.4)
CUColleges	4141	4762	5476

Note: Figures in Parantheses indicate percentage of OU costs to CU Colleges costs in the respective years

Table 3 Comparison of Annual Recurrent Cost Per Student (Rs.)

As we will see in the next section the effectiveness of distance educational system as compared to conventional education system is complex to understand and utmost care is necessary to interpret them. Since large investments are made in developing and producing the materials and most of these costs are independent of student enrollments, there is a possibility that the per student costs of distance education turns out to be more costly than those of conventional education. Also from Table 3 it can be seen that among the open universities the per student costs of IGNOU and YCMOU are relatively higher than the costs of BRAOU. This is mainly because the BRAOU is the oldest among all the open universities and has reached a steady state level. This university with an effective enrollment of over 50 thousand students has fully reaped the benefits of the economies of scale. IGNOU is fast expanding in terms of number of courses/programmes, study centres and other student support network and it may take more time to reach a steady state level.

Drop-out Rate(%)	Cost Per Graduate (Rs.)	
	IGNOU	CU Colleges
0	6000	16428
10	6667	18253
20	7500	20535
30	8571	23469
40	10000	27380
50	12000	32856
60	15000	41070
70	20000	54760
80	30000	82140
90	60000	164280

Table 4 Cost Per Graduate of IGNOU and Conventional University Colleges at Different Drop-out Rates

Another criticism that widely received by the distance education system is the possibility of high drop-out rates. For this reason although it appears initially that the cost per student enrolled is lower than the cost of conventional university students, the unit costs may look differently when we compare the costs of graduated students. We tried to analyse the unit costs per graduate. We have worked out the cost of 3 year undergraduate programme of IGNOU and compared this cost with the cost of conventional education students which are offering a similar programme. The cost per student enrolled for undergraduate programme in IGNOU for all the 3 years of his study was Rs. 6000 in 1991-92. The cost for a similar student in conventional university colleges was Rs. 16428. However, in order to work out the cost per graduate the exact drop-out rates in both the systems are not available. We have, therefore, worked out the costs hypothetically for different possible drop-out rates. Table 4 gives the possible drop-out rates at which the two systems are cheaper. It is clear from the Table that even if we assume that all the students enrolled will be graduated in CU colleges, the drop-out rates should cross 60% in IGNOU before the cost per graduate at both the systems are equal.

ECONOMIES OF SCALE

As we have explained earlier, in conventional system, the most significant cost component is the teaching cost. Since the system maintains a suitable teacher-student ratio, any increase in student numbers results in corresponding increases in the number of teachers (Pillai, 1992). Therefore, in conventional education institutions most of the costs are directly related to the number of students enrolled and are treated as variable costs. However, since distance education adopts a multi-media approach, very significant costs are incurred (print, audio and video) irrespective of the number of students (Rumble, 1986). Because of this reason, these costs can be regarded as fixed costs in relation to the student numbers. The cost function in distance education can be expressed in the form:

$TC = F + VN$

Where TC = Total costs, F = Fixed costs, V = Variable cost per student, N = Number of students enrolled.

The average cost (AC) is the fixed cost divided by the number of students (N) plus the variable cost per student (V):

$$AC=\frac{F}{N}+V$$

With the rise in enrollment the average fixed cost declines at a faster rate resulting the corresponding decline in average cost also. However, there is a point at which the rate of decline slows down and the average cost curve flattens out. This is the optimum (enrollment) point upto which the economies of scale can be reaped.

We have made an attempt to examine this point and determine the optimum enrollment at which IGNOU can fully reap the economies of scale. Figure 1 explains the behaviour of average cost when student number increases. It can be seen that when student number is over 140 thousand the average cost curve flattens out and we conclude that for a student number over this, the university may not achieve further economies of scale. However, since the variable cost is still less than the average fixed cost beyond 140 thousand students, we feel that the cost of IGNOU will be more cost-effective for an enrollment of 2 lakhs students or more.

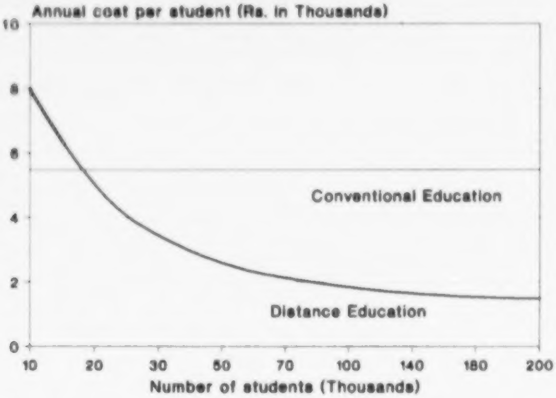

Fig. 1 Comparative Costs of Conventional and Distance Education Enrollment: 1991-92

Also, as we have discussed earlier, there is a possibility that unit costs of distance education are higher than the conventional education if sufficient number of students are not enrolled. Figure 1 shows the comparative average costs of IGNOU and conventional university colleges for different enrollments. From this it is clear that the conventional education is cost- effective when enrollments are low, but there is a point beyond which distance education is more cost-effective than the conventional education.

INTERNAL COST-EFFICIENCY

As Mace rightly argues that 'it is singularly pointless exercise to compare the relative efficiencies of two systems for producing graduates (external efficiency) and not consider the internal economies or diseconomies operating with the system (internal efficiency)'(Mace, 1978), it is important to have optimum enrolment in individual programmes also. For this reason we have estimated the costs of individual programmes in IGNOU and the results reveal that the variations among the programmes are very significant and some of the programmes are costing higher than the conventional university colleges costs mainly because of high fixed costs and low enrollment. However, if such programmes have any significance of societal needs and other importance they have to be retained even these individual programmes costs are not cost-effective. Table 5 gives the per student unit costs of IGNOU programmes from 1989-90 to 1991-92

Programme	1989-90	1990-91	1991-92
Bachelor's Preparatory Programme*	438	519	779
Bachelors's Degree Programme	1842	1644	1997
Bachelor of Library & Information Science	2315	2260	3118
Management Programmes	1839	1702	1780
Diploma in Distance Education	2059	3149	5672
Diploma in Creative Writing in English	5190	7638	6247
Diploma in Computers in Office Management	----	4459	4599
Diploma in Rural Development	----	----	2302
Diploma in Higher Education	----	----	3662
Certificate in Food & Nutrition*	768	731	780
Total	1771	1699	2046

Note: * For six months (duration of the programme)

Table 5 IGNOU Programmes: Annual Cost Per Student (Rs.)

CONCLUSIONS

IGNOU is fast expanding in terms of programmes, courses, teaching inputs and establishment of student support services and is yet to reach a steady state level. Nevertheless, the cost per student is low when compared with conventional system. The university should go for a larger enrolement to fully reap the benefits of economies of scale. Also, in order to improve the internal cost-efficiency of the university, the optimum enrolement should be on a programme to programme basis while maintaining the quality of these programmes. However, in some programmes the optimum level of enrolement may not be possible and such programmes needs to be judged according to the societal needs. Moreover, as India is a multilingual country, developing various courses in different languages will accordingly multiply the costs. In order to contain the duplication of the courses and maintain the quality of the materials, the courses have to be translated into the regional languages by the respective state open universities and the institutes for correspondence courses.

REFERENCES

Kulandai Swamy, V.C. (1993a), *Social Demand for Higher Education in Asia: How Cost Effective are Open Universities,* A Study Sponsored by the World Bank, IGNOU, New Delhi

Kulandai Swamy, V.C (1993b), "Funding Open Universities, IGNOU: A Case Study", IGNOU, New Delhi

Mace, J. (1978), "Mythology in the Making : Is the Open University Really Cost-effective?", *Higher Education,* 7, 295-309

Pillai, C.R. (1992), "Accommodating Social Demand for Higher Education: Cost-effectiveness of IGNOU", Paper Presented at the Madras Seminar, 22-24 Dec., 1992.

Pillai, C.R. and Naidu, C.G. (1991), *Cost Analysis of Distance Education : IGNOU,* IGNOU, New Delhi

Pillai, C.R. and Naidu C.G. (1993a), A Forthcoming Study on "IGNOU Programmes and their Costs" IGNOU, New Delhi

Pillai, C.R. and Naidu C.G. (1993b), A Forthcoming Study on "Comparative Costs of Conventional Degree Programmes, Correspondence Education Programmes and Open University Programmes", IGNOU, New Delhi.

Rumble, Greville. (1986), *The Planning and Management of Distance Education,* Croom Helm, London .

UNDP (1993), *Human Development Report-1993,* Oxford University Press, New Delhi.

UGC, *Annual Reports: 1958-59 to 1991-92,* New Delhi.

A Comparison of Educational Economy between TV University and Traditional Colleges in China

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In April 1978, Deng Xiaoping, Chairman of Chinese Military Commission put forward an instruction, "Measures should be taken to accelerate radio and TV education and other educational means, which is one of the important ways to develop education in the best possible manner." After that China's TV university education has mushroomed. It has become one of the important parts of far distance education. Up until now China TV university has become a large establishment, including one central radio and TV university, 44 provincial radio and TV universities, 575 regional radio and TV universities and 1500 county-level TV education stations covering the nation-wide far distance higher education system.

In the recent five years, China TV university education has obtained remarkable achievements. Based on the census by the National Education commission, TV universities have enrolled students majoring in industry, agriculture, medicine, literature, economics, politics, law, arts and physical education. 209 million students are studying in normal universities among which 1.57 million have graduated. According to the post-graduation investigation into the graduates ability and records, 80% have been assessed as excellent. 50% of the working units think that their abilities are similar to that of the college graduates. 30%—40% of the working units think that their abilities are higher than that of the college students.

It has been approved that China TV educational system has become one of the important parts of China's higher education. It even has gained a good reputation in international education.

China TV university education has developed so rapidly in such a short period of time and made so much progress, as is due to the stress laid by the government and society. China's TV university education is suitable to the development and condition of China. China is a large country with a vast population. Its economy is at the stage of development, so the comprehensive national power is not very strong. However, various kinds of specialists are needed in China's modern socialist construction. Moreover, the qualities of all the staff members have to be improved. China's TV university education has met the requirement of society, so it develops vigorously with its modern teaching method, flexible education system and strong economic benefit, the latter being the most important fact that helps to accelerate its development. In order to make a deep approach into the economic advantage of China TV education, two respects are being discussed on the basis of facts and data.

1. Average Training Expenses per capita.

2. Average Occupation of Educational Resources per capita.

3. Comparison and Analysis on the economic benefit of China TV university education and college education.

I Comparison between China TV university education and college education.

1. Comparison of Training Expenses per capita.

(1) Comparison of Training Expenses Per capita from 1988—1989.

student Type	TV university of Beijing Wu han and Hu Bei (yuan)	Colleges (yuan)	Realative ratio (%)	Bei Jing TV university (yuan)	Colleges in Beijing (yuan)	Relative Ratio (%)	Hubei Wuhan TV University (yuan)	Colleges in Hubei	Relative Ratio (%)
3-year College Education	1272.3	2758.3	46.1	1346.3	3139.4	42.9	256.7	2480.2	
total Educational expenses	963.1		34.9	1335.6		42.5	1104		

Table 1

resources: Assessment on China TV Education Quality and Investment Profit Wuhan Publishing House, 1992.

(2) Comparison of Training Expenses of Various Majors between China TV University and that of Colleges.

3 year education of TV university professional type (gradustion year)	Regular Training Expenses Percapita	College & Universites affiliated to SEC	Exchage to 4-year college students Average Training Expenses (yuan)
Science students (1989)	1373.02	Institutes (1989)	2529.88
Arts students (1988)	903.09	Universities (1989)	2445.11
Economic students (1989)	1161.18	Normal Universities (1989)	2308.78

Table 2 resources: the same as Table 1

2. Quantity Comparison between Average Occupation of Educational Resources.

(1) A Comparison of Proportion of teachers and students in TV University, proportion of faculty and students between that of colleges.

Type of Colleges	year	TV universities	Colleges
professional Teachers-students (students/teachers)	85-86	150.3	5.2
	86-87	108.3	5.3
	87-88	93.5	5.4
	88-89	73.0	5.5
Professional and spare time teachers (students/techer)	85-86	8.7	—
	86-87	7.3	—
	87-88	7.3	—
	88-89	6.4	—
Professional Faculties students (students/teacher)	85-86	142.5	2.0
	86-87	102.6	2.1
	87-88	87.4	2.2
	88-89	65.2	2.2

Table 3 resources: the same as table 1

(2) Comparison of Total Fixed Assets Value, Average Occupation on the Building Area per capita between that of Colleges (1988—1989).

		Average Occupation on the Total Fixed Assets value per/capita yuan/person	Average Occupation on the building area percapita m /person	Average Occupation of land per capita mu/person
TV university		1308	10.8	0.0189
colleges & universities		16860	41.8	
Colleges in Hubei Province	Total	11810	34.7	
	affiliated to ministriel& central goverment	14412	37.9	
	affiliated to provincial goverment	5940	27.5	
	3 year colleges attached to college& universities	4333	20.1	
	short term vocational colleges			

Table 4

Ⅱ Analysis

The above facts & data show that the comparative investment economic benefit of China TV University education is shown in the following four respects.

1. TV University education features with low input and high output, so it can develop rapidly within a short period of time.

From 1982—1988, within the past 7 years, China TV University has turned out 1. 3085 million graduates. Namely, among 100 college graduates of the same year, there are 24 TV University graduates. TV Education is based on far distance education centred on electronic technology. One lecturer teachers, while millions upon millions of students attend lectures over TV. Compared with traditional classroom education, it features with vast educational coverage and large capacity. There is no time limitation, so it is of high investmental benefit, as is far superior to college education. The reason is that China is a developing country. The economic foundation is not very strong, so government can not afford to put enough money and manpower to develop college education. Colleges with 5,000 students should be allocated 850 teachers and 500 administrative members. Besides, large sums of money is needed according to regulations by the State Education Commission. TV university education has comparative advantages. A provincial TV University with 30 thousand students (including the subordinate regional and county TV universities) needs only 300 teachers.

The history of colleges has revealed the limitation. In 1957, China had 229 colleges and Universities and 441 thousand undergraduates. In 1989 there were 1075 colleges and universities and 2082.1 thousand students. After 32 years development the number of colleges and the number of students have increased 21.30% and 21.18% respectively. That is to say, when the average increase of students hits 1800, a new college is needed. So it is impossible only to develop college education, hoping to meet the needs of society for personnel with special skills.

2. The Average Training Expenses Per capita of TV University are much lower than that of college.

From the sample investigation into 3 provincial TV universities, the 1988—1989 graduates' training expenses are only 43% — 51% that of college.

From the formation of average training expenses per capita, it's economic benefit is more obvious. The average training expenses per capita of TV University graduates include government fund, social donation, individual tuition, the total cost and potential cost while the average training expenses per capita of college only contains the expenditure of average education fee. If only the average training expenses of TV university is considered, the advantage of economic benefit is much more obvious.

3. The average occupation of TV students on educational resources is much lower than that of college students.

At first, from the proportion of teachers and students, the proportion of the professional teachers of TV University (1988 — 1989) and students is 73 (student/teacher), while college is 5.5. The porportion of faculties and students in TV university— 65.2, college—2.2. From the above data, the rate of man power utilization in TV university is comparatively superior to that of college.

Secondly, from the average occupation on the total fixed assets value and college building areas, the average occupation on the total fixed assets value per capita of TV university is only 7.7% that of college, the occupation on college building area is only 25.8%. Even if it is compared with the 3-year college, the occupation on average total fixed assets value and college building area are 30% and 53.7% respectively. This shows the obvious advantage of economic benefit and investment profit.

Ⅲ The Fundamental cause of TV University's economic advantage and some suggestions on it's further development.

The above facts and data show that China TV University has obvious economic advantage over college education. Where does the advantage come from? How to utilize it in socialist modern construction?

1. The Fundamental cause of its advantages. TV education's economic advantage lies in its own characteristics. This can be shown in the following respects:

(1) TV university education is based on modern educational method centred on electronic information and technology. It is unrestricted by time and space featuring with vast coverage, large capacity, low input and high output. TV university has utilized and developed this advantage of information resources, and enlarged its education scale. So it's economic advantage can be preserved.

(2) The method of far distance education adopts the principle of open to society. The man power resources, especially college and university teachers are fully utilized. The experienced teachers and experts can make full use of their time and energy. TV university education has solved the problem of over-scheduled faculties in colleges and universities.

(3) Government, society and individual jointly invest money to flourish education, which stimulated the initiative of central and local government and excavated social resources. So the investment atmosphere has been formed. It is flexible and adaptable. It is suitable to China's national condition and the on-going reform of economic system.

(4) The motive of TV university education has been estalbished —— To meet the requirement of economic construction and social development. The goal is reached by prediction of specialists, experts and other skilled workers, adjustment of service direction and education goal, also by means of adjustment of teaching method, curriculum assessment, information feedback, perfection of

school system in order to meet the requirement of the society. These are the weak points in college education.

(5) The educational system of over- all planning has been formed, that is from regional TV university to China TV university different principles and disciplines are worked out. This is the keypoint of investmental economic benefit compared with college education. This educational system of multilevel education, modern teaching method , good education quality helps to develop the advantage of running school by joint force, which assures the economic benefit of TV education.

2. Obvious economic benefit. TV university education, as an important part of Chinese higher education, has trained many applicable, skilled and grass-rooted persons. It has made great contribution to enlarge the scale of higher education, adjust and perfect higher education system, proportion of subjects and grades, formation of subjects and regional distribution. This is known to the world. By the middle of 21 century, China will have realized socialist modernizations. In order to reach this goal, China TV university education still has many short comings. We can say that the economic benefit has not yet been shown yet, It is far behind its scale benefit. and not match the speed of economic development. So the far distance modern education system with Chinese characteristics should be perfected constantly. The scale should be enlarged, structure perfected, quality improved in order to increase TV university education's economic benefit. To be exact, the following respects should be considered.

(1) To ensure education quality. Good investmental economic benefit is based on certain quality. Products of poor quality is prodigious waste. In order to increase its economic benefit, the quality of TV education is the primacy to be considered . To ensure that TV university trainees meet the level, quality and type of personnels with special skills stipulated by the central government, and to make sure that the TV university trainees are of the same quality. This requires us to establish a set of administrative measures which are suitable to the principle of far distance education and Chinese conditon as well. Improvements should also be made on text books, teaching facilities, professional and part-time teachers so as to strengthen the over-all management on teaching and administrative work.

(2) To make sure that the TV university trainees can make full use of their capabilities. In order to reach this goal, the curriculum and type of education should meet the demands of social development and economic construction of our country. This requires TV university to strengthen the over-all control and adjustment and prediction of special personnels according to the regional and national development of agriculture and industry, and to adjust educational type and subjects in time. That's to say, the educational principles and systems should be flexible and adaptable to the requirement of social development and economic construction.

(3) To set up suitable educational scale. China's TV university adopts the principle of open to society, multilevel education by means of modern teaching method and facilities so as to train various kinds of special personnels. It is when the educational scale and students number are comparatively large that the economic benefit can be obvious. It doesn't mean that the larger, the better. This touches the economic problem of suitable TV university education scale.

TV university education should be performed within certain limits. Only in this way can the educational resources be made full use of and its benefit increased and the economic efficiency be shown. So this requires TV university education be stable, persistent and increasing to certain degree. Large Fluctuation should be avoided. Second, the scale of TV university education should have a lower-limit. When the scale and number of students is below the lower limit, TV university education is not profitable as college education. So some stable, popular and practical education type and subjects should be arranged. Moreover, the scale of TV university education should have an upper-limit when the scale, number of students, educational type and subjects are above the upper-limit, it is overburdened, and both the educational quality and resources are poor. so the economic advantage can not be shown.

Of course, the certain scale of TV university education is a flexible concept. It changes with the modification of history. To fix a certain scale in a historic period, one should have a good understanding of the history and present state of the educational system, have a thorough understanding of the history and present conditions of the system of TV university itself and the resources of far distance education and its development prospects. Besieds, based on facts and data certain teaching mode should be adopted so that scientific assessment can be performed.

A Costing Structure for the OUSL

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ABSTRACT

This paper presents a logically developed costing structure for the OUSL, which would effectively contribute towards the provision of necessary information and promotion of cost consciousness at all levels. The basis for apportionment of expenditure components under different cost centres have been derived, after a comprehensive and extensive analysis of the nature of work involved under each case, justifiably leaving out extreme occurrences in the system. Possible implementation of the proposed structure on a Spread Sheet environment also discussed.

INTRODUCTION

The establishment of the OUSL was considered to be a dawn of new era in higher education of Sri Lanka. The more than a decade long history has helped us in realizing only few complications and implications of the OU system and its environment. The understanding of the system in its true perspective has become a prerequisite for its survival than for its existence. In this respect, issues related to the costs are high on the agenda.

Over the past 12 years or so, the OUSL has grown in many folds in the areas of student enrollments, programmes offered, facilities provided and infrastructure. Such developments have greatly contributed to an increased administrative burden, which is shared by non-accademics as well as accademics. Nevertheless, in general the cost consciousness towards all these accdemic, administrative and operational activities has been at its minimum level. The absence of a formal costing structure has been the major reason for this situation. Apparently the present practice is incapable of providing required administrative and management information for efficient, effective and economical operation of the institute.

PRESENT PRACTICE

A costing mechanism is hardly available at present, at OUSL. The existing accounting system, which is simply characterized a typical conventional system, has failed in providing meaningful information for most of cost related issues inherent to our system. In many of the occasions, the practice of marginal costing has been adopted for the purpose of deciding fees, which is totally unacceptable in the light of the massive administrative burden. The key basis for rough costing of courses has been the student - credit. This is extremely unfair due to highly varying resource consumption among the faculties, divisions and courses. A more refined approach is essential even at a cost of little additional effort.

PROPOSED COSTING STRUCTURE

The objective of the proposed structure has been to identify the fixed cost and the variable cost associated with a course. There could be contributions to the fixed cost coming from various overheads at various levels. Here the overheads occur at University, Faculty, Divisional, Programme, Coordinator and Course levels are identified.

The variable co-efficient is reflective of the direct resource contributions towards a student following the course in the areas of academic counselling, multimedia material, evaluations and examinations, direct facilities and direct overheads.

Different expenditure components occurred at each cost centre is allocated and/or progressively apportionated in compiling the aforementioned two cost types for each course.

Expenditure types

A comprehensive analysis of expenditure types, in the light of informational requirements and present practice of maintaining accounts has revealed the following general set expenditure types for cost centres.

* Salaries and wages, Provident Fund and Gratuity contribution/approved allowances.
    - Permanent Cardre
        . Academic
        . Academic support
        . Non - academic
    - Temp. Cardre
        . Academic
        . Academic support
        . Non - academic
    - Contract
        . Non - academic
    - Casual
* Over - time
* Holiday pay
* Visiting academic's fees
* Consultancies
* Office stationary, printing materials
* Equipments
* Minor repairs and maintenance to vehicles and equipments
* Traveling
* Transport
* Electricity
* Water
* Security
* Communications
* Postage
* Student union and welfare
* Human resource development
* DP services
* Maintenance
* Evaluation
    - Continuing assessment based
    - Final examination
* Staff - welfare

Cost centres

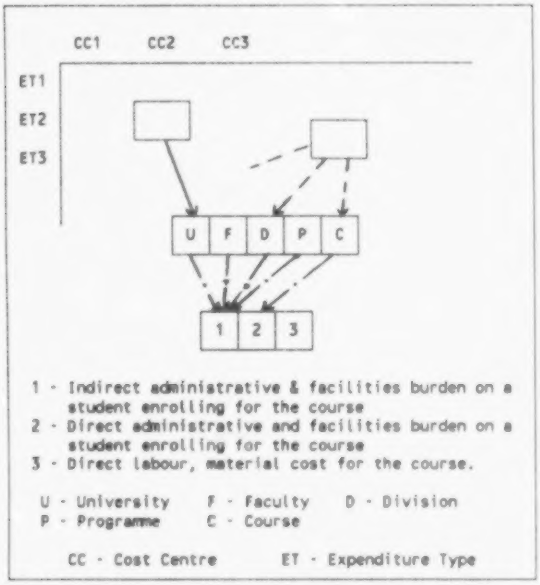
A refined spectrum of cost centres are identified for the purpose obtaining a more realistic picture of the state of affairs.

* VC's Office
* DP Div.
* Operations
* Director RES Office
* Regional Centres
    - Office
    - Hostels
    - Stores
    - Computer Lab
    - Library
    - Gest House
* Study Centres
    - Office
    - Computer Lab
    - Gest House
* Main Stores
* Main Library
* Press
* Works and Maintenance
* Audit Div.
* Examination Div.
* Student Affairs Div.
* Establishment Div.
* Registrar's Office
* Accounts Div.
* Continuous Assessment Div.
* Deans Office
    - Divisions
        . Head
        . Co-ordinators
        . Non-academics
    - Laboratories
    - Workshops
* Educational Technology Div.
    - Audio Lab
    - Video Lab
* General Administration Div.
* Deputy Registrar's Div.

The above two dimensions, (eg cost centres and expenditures) would form the basic grid framework for us to proceed with allocation and apportionment process. The very same structure is illustrative of the importance of the establishment of cost codes to facilitate the exercise.

Apportionment, allocation and absorption

Establishing a realistic basis for apportionment could be the key to the success of the whole exercise. The basis for apportionment should be established by realistically assessing the nature of the work carried out at each cost centre at different levels. The general mechanism for the apportionment and absorption are illustrated in fig 1.



1 - Indirect administrative & facilities burden on a student enrolling for the course
2 - Direct administrative and facilities burden on a student enrolling for the course
3 - Direct labour, material cost for the course.

U - University F - Faculty D - Division
P - Programme C - Course

CC - Cost Centre ET - Expenditure Type

Fig. 1 Costing Mechanism

From the cost grid, shown in fig 1, cell value will be apportionated either to another cell(s) or/and to general cost centres or these would be absorbed to the general cost centres as indicated in the figure . The first phase of the exercise will come to an end, once all the costs are transferred to general overheads as indicated (eg:University, faculty, Division, programe and course other than the direct costs). The indirect administrative and facilities burden on a student enrolling for a programmed offered by a division of a faculty facilities calculated by adding the respective contributions on per student basis. Direct administrative and cost of a course is also calculated as a result of this exercise.

Few examples would make life easy. The total costs at Vice Chancellor's and Registrar's office would be directly absorbed to the general overhead of University. The nature of the work at student affairs division also justifies the sharing of its total cost equally by all the registered students. All the expenditure directly associated with the heads of administrative divisions and their peons and helpers should also be absorbed by the University overhead. But the expenditure of other staff should be appropriately apportionmented for an example the clerical staff at the Establishment division working on academic staff should be shared equally by all the academic staff which in turn will be reflected on the courses that they coordinate. The same argument could be extended to the clerical staff at the accounts division handling student fees and staff salaries.

Within an academic division, Head's contribution for administrative work and expenditure on peons, Labourers etc should be apportionated to respective courses based on the student enrollments of the respective courses. All the Deans office expenditure must be absorbed to the general faculty overhead.

Direct contributions for examinations and continuous assessments would come form DP division, Examination division and from respective co-ordinators and visiting academics. Academic counselling should be based on the co-ordinaters effort in the form of time. For multimedia material, direct contribution is quite visible and is coming from the press and educational technology division.

The water bill must be first divided the students and OUSL employees. The students component must be absorbed at faculty level based on the in-campus activities and student nuember. OUSL employee component should be absorbed at divisional level based on the number of employees at each division. The high expenditure on electricity has stress the requirement for a logical base for apportionment. Individual metering would be the best option.

Those few examples are adequate enough for us to understand the monitoring required and the requirement for a sound information base for effective implementation of the proposed costing structure.

Development cost and replacement cost

Course development could be done either in-house or/and on the basis of assignment by outside staff Due to prevalent extreme inconsistencies of the practice It is suggested that irrespective of the way it is developed, in total it is assumed as an outside assignment. The full cost of obtaining final form of material other than equipment (eg. laboratory equipment)is obtained. This cost must be absorbed into a cost of the course in such a way to recover that cost maximumly of over 3 years time. For this, rough number of annual student enrollment must be known in advance.

Each division must consciously decide on an annual replacement cost based on the equipment that they handle. The extent of use, the declared life time, technological obscelance etc could be few important aspects to look at. The equipments such as computers and its accessories, office equipment such as photocopiers, Laboratory equipments etc would come under this category. Monies earned could be kept in a fund for future use where as that cost should be transferred appropriately, to be reflected in the final course fee.

COMPUTER MODEL

The grid nature of the structure and its relationships among elements make this an ideal application to be implemented on a spread sheet environment. Cost codes would correspond to cell addresses. Apportionment policies could be conveniently express in terms of formular entered at respective cells. Any change in policy could be conveniently accomated by changing the corresponding co-efficient. Apportioned, allocated and absorbed components are finally superimposed together to obtain a composite picture. Key variables such as student numbers, number of staff members at different ranks, evaluation components, number of courses in a programme etc are kept in isolated cells in order to facilitate sensitivity analysis using what - if feature in evaluating policy options. User friendly nature of he model will encourage the effective use at all levels.

The model would readily respond in studying the impact of crucial issues such as increased drop out rate, scrapping/introducing a programme, increasing staff at different levels,change in evaluation methods, use of alternate media with simple manipulation of respective cell entries and coefficients of formular. This model demonstrates a high degree of maintainability and flexibility.

CONCLUSION

A realistic picture of resource consumption at course level is becoming extremely important under increasing restricted resource availability. Solid base for costing and providing cost information, at OUSL, has been a long felt need. Early implementation of the proposed structure would help the OUSL to identify the true cause of many of its issues, and to improve the overall efficiency of the system, while maintaining good quality and high standard of the programmes offered.

Financial Aspects of the Operation of the School of Professional and Continuing Education at the University of Hong Kong

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ABSTRACT

Provision of non-traditional courses of study, particularly at degree and professional level, has expanded dramatically since the mid 1980's at both the established institutions and new institutions such as the OLI as well as in the private sector. Most of this provision has been on a self-financing or at least on only a partially subsidised basis which presents uncertainties as far as management and planning are concerned. This paper presents a case study of the School of Professional and Continuing Education at the University of Hong Kong (SPACE - HKU), which illustrates these issues.

INTRODUCTION

Courses of study for other than full-time students were organised from 1956 at the University of Hong Kong by the Department of Extra Mural Studies, which was established on the UK Model of Extra Mural activity as part of the postwar reconstruction of the University. There was steady growth for three decades with more rapid growth since 1987 as the statistics in Tables 1 and 2 illustrate. The increase in the number of degree and professional courses and the growing number of links with overseas institutions led to a need to reorganise the department as a School of the University to provide an appropriate infrastructure for academic quality control and management. The School was established in January 1992 and has a Board of Studies, responsible to the University Senate, and a Management Board, responsible to the University Council.

Table 1(a) **Table 1(b)**

Year	No. of Students	No. of Courses	relative expansion factors 1966/67 = 100	
			Students	Courses
1956/57	330	12		
1961/62	3,021	95		
1966/67	5,347	273	100	100
1971/72	5,808	325	109	119
1976/77	13,336	519	249	190
1981/82	22,774	842	426	308
1986/87	31,621	1,190	591	407
1991/92	44,631	1,598	830	585

Table 1(c)

The 1992/93 figures show the following distribution amongst levels of courses

Full time and part time HK University students (FTE's)	Degree, professional and postgraduate students (other University awards)	Cert./Dip Students to degree access level	SPACE Cert. & Dip students	Non Cert. and short courses
178	3,218	1,023	11,000	25,600

Table 1. Growth in SPACE-HKU 1956–92

THE FINANCIAL BACKGROUND

Historically, the University, with the agreement of the University and Polytechnic Grants Committee (UPGC) has provided support for continuing education as a service to the wider Hong Kong community. This has been expressed as a number of staff posts and it has always been the convention that the courses mounted must meet the direct costs of their operation (part-time tutor fees, course materials, room hire etc.) as well as an indirect costs element. The scale of financial activity involved is illustrated in Table 2.

Table 2(a). Fee income in $000 shown cumulatively for each quarter of the financial year (July 1st - June 30th)

		Years				
		88/89	89/90	90/91	91/92	92/93
	1st(1/4)	10,970	17,506	26,805	34,000	52,222
ends	rate of increase on					
30/9	previous year		59%	53%	27%	53.5%
	% of total by end of 1/4	52%	52%	58.5%	48.5%	58.1%
	2nd(1/4)	14,641	24,071	35,721	52,319	70,013
ends	rate of increase		64%	48%	46.5%	33.8%
31/12	% of total by end					
	of 1/4	69%	71%	78%	74.5%	77.9%
	3rd(1/4)	20,858	32,554	44,711	66,714	88,767
ends	rate of increase		57%	37%	49.2%	33.1%
31/3	% of total by end					
	of 1/4	99%	97%	98%	95%	98.8%
	4th(1/4)	21,101	33,598	45,806	70,029	89,867
ends	rate of increase		59%	36%	53%	28.3%
30/6						

Table 2(b). Fee income in each quarter ($000)

	1988-89	1989-90	1990-91	1991-92	1992-93
1st	10,970	17,506	26,805	34,000	52,222
2nd	3,671	6,565	8,916	18,319	17,791
3rd	6,217	8,483	8,990	14,395	18,754
4th	243	1,404	1,095	3,315	1,100

Table 2. Fee income at SPACE-HKU, 1988–93 ($000)

As can be seen, the last five years (1988–93) have seen a more than fourfold increase in fee income and this compares with only a twofold increase in the previous five-year period (1983/84 : $8.74m, 1987/88 : $17.75m); in other words, since 1987-88, the fee income has doubled every other year.

ISSUES OF FINANCIAL FORECASTING AND CONTROL

All these operations have to take place within the framework of an established financial structure. This has decided advantages in that the various university regulations, developed over a long period of time, ensure that proper standards are maintained even though these can restrict freedom of manoeuvre to some extent. The principal disadvantage, however, is that university financial structures are attuned to deficit budgeting, that is, a spending unit is allocated a sum of money and, all things beihg equal, should spend it within the financial year. For SPACE, this is difficult for it has a dynamic budget which can and does change from year to year and is often difficult to forecast in detail. Clearly budgets can and should be set for items of expenditure and monitored but the income to support expenditure over and above block grant support comes from fees - and these are less easy to predict.

Given that individual courses must meet the direct costs of teaching plus an element for indirect costs, it is relatively simple for each subject area to work out the appropriate fee level based on the need to break even and a realistic assessment of what would be regarded as a reasonable fee by the community. There is no hard and fast $ per hour of tuition figure across the board but lecturers build up over the years a feel for the "market rate" for particular levels of courses and there is certainly a similarity of fees for particular types of courses, both within and across institutions. A course which fails to reach its break-even figure will not run and so will not incur direct costs whereas a course which exceeds its break-even will give rise to a notional surplus.

Prior to the mid 1980's growth in activity, both numbers of students and numbers of courses, was steady. Growth in expenditure too was steady and predictable; for example, part-time tutor fees almost always ran at 35% of fee income. That income itself could be tracked at quarterly intervals throughout the year and also grew steadily as did the modest surpluses achieved. These surpluses were allowed to build up for two reasons : firstly, the existence of accumulated funds provided a "buffer" in case any one year did not break even or produce a surplus; secondly, from an early stage the then Department maintained premises in "town", off campus but centrally located for the convenience of students. Initially, these were leased with the costs becoming an indirect cost. However, periodically there was a need to move at the expiry of leases and/or when larger premises were required; these occasions generated exceptional expenditure to restore the premises being relinquished and to refurbish those being acquired to meet teaching needs. The "reserve" provided the funds to make this possible and was consciously built up to provide for this.

In the early 1980's, the University was persuaded that it was more sensible to consider purchase of teaching premises and so the ninth floor of the Shun Tak Centre, a commercial building in the business district, was bought with repayment to be made at an agreed annual level from fee income on an "amortisation" basis. This met the immediately foreseen needs for accommodation and the remaining surplus funds were split, between a continuing reserve for "buffer" reasons and University general funds.

CHANGING PATTERNS FROM THE MID 1980'S

As the figures in Table 2 illustrate, there has been a remarkable growth in the level of fee income since about 1987. This is partly related to growth in numbers but is also related to a change in the nature of the programmes offered. The School has always offered a mix of continuing and professional education but since the later 1980's, the professional sector has seen more rapid expansion. These courses have been more costly to mount since they involve more tuition at a higher level and this in turn means higher fees. Generally, however, demand has been such that the break-even levels have been easily exceeded. This changing pattern has led to profound changes. Firstly, the staff establishment has risen at all levels but this growth has been funded from fee income, not the block grant. Secondly, the growth has led to additional space demands both for teaching rooms and for staff. Thirdly, there has emerged a need to develop longer planning horizons in order to test the viability of new proposals and to convince the University to agree to future plans. Table 3 illustrates the changing emphasis as between university funding and fee income.

Years	Fee Income ($m)	Block Grant Support ($m)	Total Income	Staff Supported by Fee Income
83/84	8.7	8.3 (49)	17.0	0.2 (1)
84/85	10.0	9.5 (49)	19.5	0.3 (2)
85/86	11.8	10.0 (46)	21.8	0.3 (1)
86/87	14.5	9.4 (39)	23.9	0.3 (1)
87/88	17.8	11.0 (38)	28.8	0.7 (2)
88/89	21.1	12.0 (36)	33.1	1.4 (4)
89/90	33.6	14.3 (30)	47.9	4.6 (10)
90/91	45.8	18.6 (29)	64.4	11.6 (18)
91/92	70.0	19.7 (22)	89.7	19.2 (21)
92/93	90.0	21.7 (19)	111.7	23.0 (21)

(   ) = percentage of total

Table 3. Increase in staff support at SPACE-HKU from fee income (1983–93)

As can be seen, the expenditure on staff supported by fee income now exceeds that provided by the block grant. For academic and administrative posts, only contract terms have been offered; new clerical posts may henceforth be on contract too. It may be useful to illustrate the growth in the staff establishment by comparing the years 1987 and 1993:

	1987	1993
*academic:	20	38
administrative:	2	4
clerical:	20	50
technical:	9	9
other support:	7	22.5
Total:	58	123.5

* includes demonstrators, tutors, teaching consultants as well as lecturers

Staff costs have grown rapidly in a period of expansion and future growth is evaluated most carefully. A related aspect of staff size is accommodation; additional office space has been purchased in the Shun Tak Centre; on some of this, SPACE reimburses the University on a rental basis whilst some was purchased from reserves; additional teaching space has also been leased on a long-term basis at Shek Kip Mei and elsewhere; further lease arrangements are likely. The development of an accurate long-term planning horizon is in some ways the most difficult problem. The School has produced a ten-year strategic framework of desirable or likely academic developments. However, translating this into reliable cash flow and income and expenditure forecasts is a challenge.

PLANNING THE FUTURE, UNDERSTANDING THE PRESENT

As has been mentioned, the School's finances operate under the University's financial systems and this has a major drawback in that it is not easy to analyse fee income since information is presented either monthly on a course by course basis or quarterly on a summary Income and Expenditure basis, the one being too detailed and the other too general. Moreover, the system does not link readily to other databases in the School, for example, enrolment, student records, staff, so much useful work remains to be done to provide timely and relevant information. Rolling five-year forecasts are now regularly produced but, with fee income now of the order of $100 million per year, relatively small shifts from predicted income and expenditure can have significant consequences – a 1% variation means $1 million up or down. There are advantages of economy of scale in being under the University umbrella and it would be costly for the School to develop its own systems but this may eventually be necessary. Costed academic plans are developed by lecturers but at present it has not proved possible to devolve budgetary responsibility to the subject areas as the information is not readily accessible to support this.

An important variable is the accommodation factor; the availability of teaching rooms in the University varies each year as does the availability of the external teaching rooms; this makes planning difficult particularly as the position is often uncertain until near the start date of courses. Moreover, success in student recruitment has its difficulties if it generates a need for more or larger classrooms which cannot then easily be found. It is also a factor that opportunities have to be taken as they present themselves - the Shek Kip Mei premises costing $1.25m to renovate are a case in point. This expenditure had not been predicted in the particular financial year. A budget could, of course, be set for such eventualities but therein lies the other drawback of the University financial system, the imperative of the end of the financial year. The School has some flexibility to carry forward resources, now up to 10% of income, but the nature of its activities and plans are over a timescale much longer than a year. Yet the financial system is tied to a one-year time horizon, which may not always make for the best decision making. A resolution of this policy issue remains to be made; from the School's perspective, any surpluses which arise should be prudently put aside to guard against deficits in downturn years as well as to invest in the future generally to provide a better service to the community; for the University there clearly appears to be an opportunity to reduce costs.

SELF-FUNDING AND SUBSIDY

The School is more than 80% self-funding and the percentage of block grant support in the total activity is declining over time. Nevertheless, the baseline of resources which the University provides is critical to the success of the School. This is not just in terms of staff posts but also in access to teaching rooms, to teachers in the faculties and departments and their skills. Moreover, the fact that the

School has 30 senior academic staff who have links with the rest of the University certainly contributes to the ability to offer programmes of an appropriate quality.

It is important to note that the School operates across a number of disciplines: Computer Science; Biomedical Sciences; Social Sciences/Education; Humanities/ Languages; Law; and Accountancy/ and Business Studies. Each has a different set of cost structures and fee income pattern. Historically each has ensured that fee income covered direct costs plus a 15% overhead for indirect costs. This was raised to 20% in 1991 but actually the indirect costs total about 28% of income. There are therefore imbalances, particularly as the incidence of block grant funded staff is unequal and some areas support relatively more contract posts than others. This too is a policy issue for further debate in the School which must be discussed in the light of accurate information - which is hard to extract from the current systems. It is clear that there is some element of cross-subsidy amongst the different subject areas but the extent of this is difficult to pin down.

In addition to its own award-bearing programmes, and awards of other University faculties/departments, the School also offers awards of overseas universities and institutions. In these areas, in particular, it is important to be clear on the nature of the costs of each participating institution in order to ensure that there is no element of cross-subsidy and also that students are being charged a correct and not excessive fee. The difference between courses which have to be mounted on a full-cost basis and those which only meet direct costs is quite marked. For example, the Postgraduate Certificate in Laws has a fee level of $72,500 for the one-year full-time course whereas short continuing education courses meeting only direct costs might be much less than $1,000.

CONCLUDING COMMENTS

Running a non-traditional programme of continuing and professional education within a traditional University is both challenging and problematic when it comes to measures of performance. Firstly, these latter are not easy to come by in systems designed for other purposes; secondly, the University itself will have to come to terms with measures of performance with which it is not in general familiar since the normal university indices (for example, Full-time equivalents or FTE's) are generally inapplicable to the School's activities; thirdly, a judgement is required as to the appropriate level of university support for continuing and professional education in the context of the new university resource system currently being introduced.

The School itself needs continued boldness to ensure success. Building on the traditional continuing education programme is the concept of access to degree and professional programmes and these areas have seen the most dynamic growth. This looks set to continue but the academic plans have to be underpinned by appropriate administrative and financial structures. Much growth is planned, including a new building on campus, and almost, certainly more off-campus provision, especially for teaching. However, difficulties will arise without better information systems within the School and flexibility is required within the university financial system to allow for development without having to adhere to rigid targets.

The constant worry in considering the future is the risk factor of an economic downturn impacting on fee income. The "buffer" to some extent provides cover for this and the School has the capability, through non-renewal of contracts, to retrench reasonably quickly if need be. However, another purpose of the "buffer" is to provide funds for new developments until such time as these are covered by fee income and it is certainly important in Continuing and Professional Education provision both to be able to take a long-term view of the programmes offered and to react reasonably quickly to changes in demand. The first Director, Mr. G Moore offered the following comments in 1967.

> "The aim then (1956) was to create a movement in adult education which might match the energy and eagerness of the surrounding atmosphere. So far as I can judge, this has been achieved and the work of the university among the adult population has become a fully accepted feature of the Hong Kong scene. However, no such activity can rest on its achievements. It must be always on the move, always looking for fresh opportunities and challenges in the society around it."

and these observations hold with equal force today as SPACE looks forward to the 21st century.

REFERENCES

Dept. of Extra Mural Studies, University of Hong Kong (1967). *The first ten years*. Hong Kong: Dept. of Extra Mural Studies, University of Hong Kong.

School of Professional and Continuing Education/ Department of Extra Mural Studies, *Annual Reports*.

The bulk of the information in this article is derived from internal working papers although some figures have been published e.g. student and course statistics appear in the Vice-Chancellor's Annual Reports of the University of Hong Kong.

Economics of the Expansion of the University of the Air of Japan

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ABSTRACT

The cost efficiency of the University of the Air of Japan (UAJ) was analyzed in consideration of direct expenditure (consumptive cost and capital cost) and indirect expenditure (opportunity cost and learning cost). The result shows that UAJ is more economical than conventional campus-based universities under present conditions because of the low opportunity cost. The simulations on its nationwide expansion demonstrate the possibility that UAJ will be more economical than it is at present, employing a satellite broadcasting system. Furthermore, the analysis by the bearer of the cost indicates that UAJ is the most economical for the household.

1. PURPOSE OF THE STUDY

The University of the Air of Japan (UAJ) was established to provide all people access to university level education. The ability of UAJ to meet this goal has been limited by its broadcast range, which is restricted to the Kanto region and a few additional areas of Japan. To permit access to a larger percentage of the Japanese population, a nationwide expansion of UAJ is now being considered.

This study aims at comprehensive cost analysis of the UAJ where capital expenditure and indirect costs as well as consumption expenditure are considered. The cost efficiency of the UAJ will be demonstrated through a comparison between the UAJ and conventional universities, and the corresponding programs of private universities, which is another means of distance education. Then the impact of the increase in the number of students on cost efficiency will be estimated. In the end, cost analysis per party to bear the cost will be conducted to assess the cost efficiency to the parties concerned.

2. Methodology

2.1 The number of degree-course equivalent students

Degree-course and non-degree-course students coexist at UAJ. It is necessary to convert the numbers of various types of non-degree-course students to that of regular degree-course students by giving them some weights. Based upon the average credit hours for regular degree-course students and other types of students, area-course students, students of selected subjects, special students, special auditors, and research students were weighted 0.6, 0.5, 0.7, 0.5, and 0.6 respectively, whereas degree-course students were weighted 1.0.

The numbers of non-regular students at conventional universities should be converted into those of regular degree-course students for the same reason. In this study, graduate students, full-time non-degree course students, and auditors are weighted 2.0, 1.0 and 0.5 respectively where regular undergraduate students were weighted 1.0 as in former studies (Muta, 1985; Muta and Sakamoto, 1989).

2.2 Direct expenditure

2.2.1 Consumption expenditure

Among the direct expenditures which are involved with the operation of the UAJ, consumption expenditure is the amount spent on goods and services consumed within each fiscal year. The National Center for Multi-Media Education (NCMME) is indispensable for the operation of the UAJ, and a major part of the costs of the center has to be considered as part of the costs of the UAJ. Ninety percent of the maintenance costs of the studios, and 50% of the other costs of the center, including personnel expenditures, were considered to be the costs incurred by UAJ.

Expenditures of liberal arts courses of national, public, day programs of private universities, night programs of private universities, and correspondence courses of private universities were calculated to make comparisons with that of UAJ. The costs were all converted into the 1990 value using the consumer price index as a deflator.

2.2.2 Capital expenditure

The costs of capital goods (facility and equipment) tend to be paid shortly after the purchase. However, such goods continue to offer services for decades to come. Therefore, it is inappropriate to employ the capital expenditure in the settled account for each year in this analysis. Following the general accounting standard, it was assumed that the lifetime of facilities and equipment is 60 years and 10 years respectively, and the interest rate is 5%. The total annualized cost for each year was calculated by cumulating the annualized cost of different years for each year. As for the cost of the NCMME, 90% of the annualized cost of the studios and 50% of the other costs were considered to have been borne for UAJ. Since the costs of facilities and equipment per course for conventional universities are available only for the past twenty years, cumulated value for the twenty years times 3 was used as an estimate.

2.3 Indirect expenditure

The study expenses of the UAJ students are estimated based upon the circumstances of students attending conventional universities. In addition to the study expenses, the loss of opportunity to work can be considered as a cost that students bear by receiving education. Foregone income was calculated by multiplying the average income after tax by the employment rate. However, foregone income of the UAJ students and correspondence courses of private universities was considered to be none.

The income earned due to higher education should be considered as negative education cost. Using the Survey of University and College Student Life, the sum of income through part-time and full-time employment and other types of income, was considered to be the negative education cost. Net foregone income was found by subtracting income from the gross foregone income.

3. COMPARISON OF COSTS

3.1 Comparison of cost per student

Table 1 shows a comparison of cost per student broken down by consumption expenditure, capital expenditure, and indirect cost. An estimated consumption expenditure of the UAJ for the fiscal 1991 is 28% and 29% of the figures for 1991 at national and public universities; 43%, 68%, and 4.3 times of that for 1990 at day programs of private universities, evening programs of private universities, and correspondence programs of private universities, respectively. While consumption expenditure has tended to increase at conventional universities and in correspondence programs, it is decreasing at a significant rate at UAJ due to the fact that the number of the students is increasing. Because of this, the relationship between the figures for UAJ and evening programs of private universities has been reversed since 1989.

When indirect cost such as opportunity cost and study expenses are also considered, the economic advantage of UAJ is especially apparent. The total of the direct and indirect cost per student at UAJ is 0.13, 0.16, 0.28 and 2.7 of the cost at national and public universities, day programs, evening programs, correspondence programs at private universities respectively.

As it has been demonstrated, the UAJ is by far superior to other types of programs in terms of cost, when indirect costs such as study expenses and net foregone income are taken into account. Foregone income is substantially larger compared with direct cost at the conventional universities.

3.2 Comparison of cost per credit

The issues of cost per student contains the problem of the treatment of non-degree course students. In order to solve this problem, cost per credit has been compared. Cost per credit can be calculated by dividing costs by the annual number of credits earned by the students. Table 2 shows cost per credit. Consumption expenditure per credit at the UAJ is 1.1, 1.7, 2.1, and 4.5 times of national and private universities, day programs of private universities, night

Table 1. Cost per student

	Consumption expenditure			Capital expenditure			Indirect expenditure			Total cost		
Year	1985	1990	1991	1985	1990	1991	1985	1990	1991	1985	1990	1991
UAJ	466.1	327.1	281.9	58.9	54.8	50.1	84.4	75.0	73.7	609.4	456.9	405.7
Correspondence prog.	61.4	66.2		3.5	2.9		88.9	79.9		153.8	149.0	
National univ.	1007.4	1012.1	1018.9	680.5	560.4	532.7	1546.3	1574.6	1616.8	3234.2	3147.1	3168.4
Public univ.	849.5	981.1	986.3	638.4	572.7	585.0	1430.9	1473.1	1516.4	2918.8	3026.9	3087.7
Private day prog.	564.2	651.0		304.5	263.1		1586.1	1618.8		2454.8	2532.9	
Private night prog.	357.3	417.5		125.8	129.4		789.0	887.1		1272.1	1434.0	

(unit Yen 1,000)

Table 2. Cost per credit

	Consumption expenditure			Capital expenditure			Indirect expenditure			Total cost		
Year	1985	1990	1991	1985	1990	1991	1985	1990	1991	1985	1990	1991
UAJ	43.30	42.15	37.05	5.47	7.07	6.59	7.85	9.67	9.69	56.62	58.89	53.32
Correspondence prog.	7.71	8.32		0.44	0.37		11.16	10.03		19.31	18.71	
National univ.	33.06	33.22	33.44	22.33	18.39	17.48	50.75	51.68	53.07	106.15	103.30	103.99
Public univ.	27.91	32.23	32.40	20.97	18.81	19.22	47.00	48.39	49.81	95.88	99.43	101.43
Private day prog.	18.38	21.21		9.92	8.57		51.67	52.73		79.96	82.51	
Private night prog.	15.46	18.07		5.45	5.60		34.14	38.39		55.05	62.06	

(unit Yen 1,000)

programs of private universities, and correspondence programs of private universities. The UAJ was the least cost effective.

The total cost per credit, including capital expenditure and indirect cost (as in the other cases), and the values for distance education became relatively low. Furthermore, the total cost per credit for UAJ is lower than that for evening programs of private universities. The total cost per credit of UAJ was 51%, 53%, 65%, 86%, and 2.9 times that of national universities, public universities, day programs of private universities, night programs of private universities, and correspondence programs of private universities. Compared with cost per student, cost efficiency of distance education is worse. This is chiefly because the ratio of students registered for subjects to the all students, and that of the students who actually earned credits to those who registered for subjects, were lower for UAJ compared with the conventional universities.

4. OPERATION ON A NATIONWIDE SCALE

4.1 Study centers

The impact that the cost of the study centers has on the total expenditure cannot be neglected when UAJ is operated on a nationwide scale. The cost of the study centers and its impact on the total expenditure fluctuates a great deal depending on the size and number of such. Therefore, this study assumed three conditions where 1) the number of the centers does not increase, 2) there is one study center per prefecture, and 3) small sized study centers are opened to cope with the increase in the number of the students.

4.2 Means of delivery

This study examined the following four methods as means of delivery: I) programs are not directly sent to the students, II) programs are mailed to the students in the forms of video and audio tapes, III) programs are broadcasted via a communication satellite, and VI) programs are broadcasted via broadcasting satellite.

4.3 Modes of operation and their impact on cost per credit

Using three types of locating study centers and 4 types of transmitting programs, 12 modes of operation on a nationwide scale were examined. Figure 1 shows a comparison of cost efficiency per credit between several modes and existing universities in terms of direct cost. The cost-effectiveness of the UAJ is somewhat unfavorable right after operation on a nationwide scale was started due to the increase of fixed costs such as that of satellites. This condition is cured along with the increase of the number of the students.

Taking indirect costs into consideration, all types become less expensive than night programs of private universities. However, since the indirect cost of correspondence programs of private universities are similar to those of the UAJ, the cost efficiency of the UAJ does not achieve the same level as that of correspondence programs of private universities, just like the direct costs of the UAJ does not achieve the same level as that of correspondence programs of private universities, even when the number of students reaches 200,000.

Among the modes of delivery sharing the same mode of developing study centers, the mode in which programs are mailed to the students is economical when the number of the students is small. However, it becomes costly when the number increases because the increase in the number does not cause decrease of cost per student. The modes of employing CS broadcasting and BS broadcasting are not economically advantageous at the beginning because they incur substantial fixed costs. Yet they become reasonable once a certain number of students have been attained. CS broadcasting is cheaper than BS broadcasting when only their direct costs are compared. However, receivers for CS broadcasting are more expensive than those for BS broadcasting, and the total cost, including indirect cost, of BS broadcasting is less expensive when the number of the students exceeds 200,000.

When comparing various modes in terms of the method of developing study centers, the method in which small-scaled study centers are made is cost efficient when the number of the students is small. But the method in which study centers are made is more cost efficient when the number of the students is 128,000 or more. This is because the change of the fixed cost of small centers is large and therefore the increase of the number of the students does not cause a decrease in cost per student. However, from the point of view of total cost, it is less expensive for the UAJ to have less number of study centers.

5. COST BY PARTY

In practice the allocation of the burden is a major problem, and it is necessary to clarify who bears the cost when analyzing cost efficiency. From the point of view of the national government, the UAJ as it is today is imposing a burden on the government in a similar magnitude as national universities. However, this situation will be cured along with an increase in the number of the students. Regardless of which mode of operation is realized, the amount borne by the government decreases when the number of the students is 50 thousand or more. Nonetheless, the ratios of the expenses borne by the national government are significantly small at public and private universities, and even the ratio at night programs of private universities, which is the largest, is 6% of that at national universities. The ratio of the expense borne by the government at the UAJ would not be as that at evening programs of private universities even when the number of the students reached 200,000.

From the point of view of households, private universities are burdensome and public and national universities are not when only direct costs, in other words amounts to be paid into the universities by households, are taken into consideration. When indirect costs are also taken into consideration, the UAJ and correspondence programs of

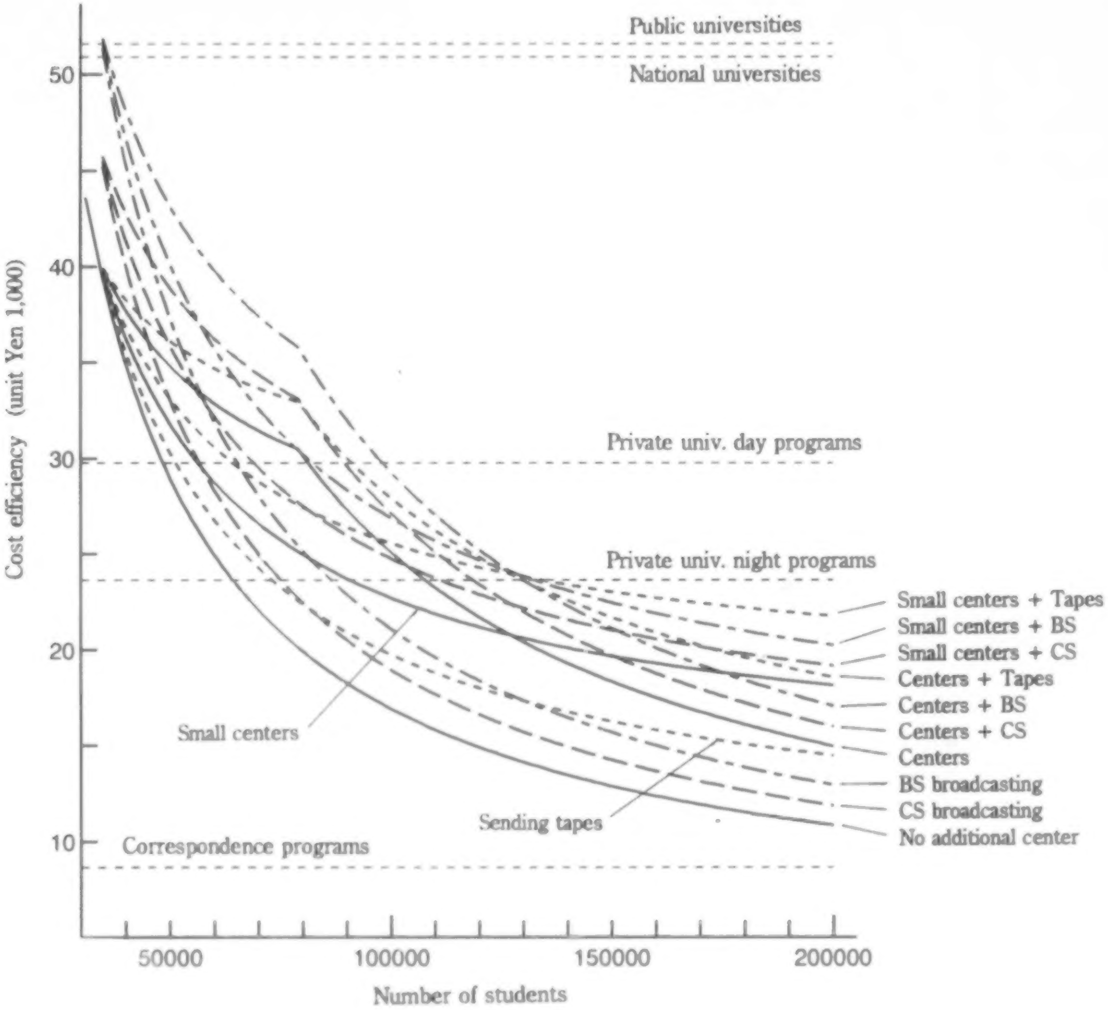

Figure 1. Cost efficiency per credit in terms of direct cost

private universities are extremely reasonable for households. The expenses borne by households are different depending on the mode of broadcasting the program because the costs of antennas and tuners to receive satellite broadcasting were taken into account as a study expense.

6. CONCLUSIONS

It was found, when expanding the operation of UAJ on a nationwide scale, that it is cost efficient to transmit programs by way of mailing tapes to the students, then shift to broadcasting via satellite after the number of the students reached a certain level. Since it is costly to establish and maintain study centers, it is wise to utilize facilities of existing universities than making new ones. It is because their mode of transmitting education is cheap that the costs at correspondence programs of private universities are significantly low, but it is also because they enjoy a cooperative relationship with conventional universities. This fact must be taken into account when considering modes to develop the UAJ. When compared with conventional universities, the UAJ did not seem to be very advantageous when only direct costs were taken into account. However, the UAJ is significantly cost efficient when indirect costs were considered. Therefore, as a means for lifelong education, the expansion of the UAJ is highly recommendable.

REFERENCES

Muta, H. (1985) The economics of the University of the Air of Japan. *Higher Education*, 14(3): 269-296.

Muta, H. and Sakamoto, T. (1989) The economics of the University of the Air of Japan, Revisited. *Higher Education*. 18(5): 586-611.

Course Feedback: its Costs, Benefits and Limitations

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INTRODUCTION

The aim of evaluation within a teaching institution is both to ensure that specified standards of provision are met, and to improve the efficiency and effectiveness of the institution in meeting its aims. Within a distance teaching institution, course feedback is often the only opportunity for course designers and academics to find out whether the courses on which they have worked have achieved their wider teaching goals.

The term wider teaching goals is used deliberately. The question of whether or not a course is meeting its specific aims and objectives can, of course, be resolved relatively simply through an examination of the student assessment results. If the pass rate is at an appropriate level, then the conclusion is drawn that the course is achieving what it set out to achieve pedagogically. Even with this scenario, the question of what is deemed to be an acceptable level for pass rates, and whether each of the individual topics being assessed should show evidence of acceptable pass rates would still have to be resolved. However, this narrow summative approach has clear limitations. For example none of the issues related to efficiency, effectiveness and student satisfaction get addressed. Are students actually surviving their studies to get as far as the final assessment? Is an expensive component such as video pedagogically necessary, or is a cheaper alternative medium such as an audio-tape just as effective?

The range of questions which course feedback can be called upon to answer indicates the complexity of the issue. Lockwood assembled a course feedback model in 1979 which illustrated graphically the range of sources of data about the functioning of a distance learning course once it was presented to students (see fig 1).

The particular feedback model Lockwood devised was constructed for use by maintenance course teams; that is, by the people responsible for presenting the course to the students, and for modifying the course where necessary. Of course these would not be the only group interested in the findings of any course feedback; policy makers, course designers working on new courses, tutors, programme managers, funding bodies, would all, for a variety of different reasons, have an interest in the feedback on different courses. In this paper, I propose to focus on just one of the major sources of course feedback data - namely on student feedback.

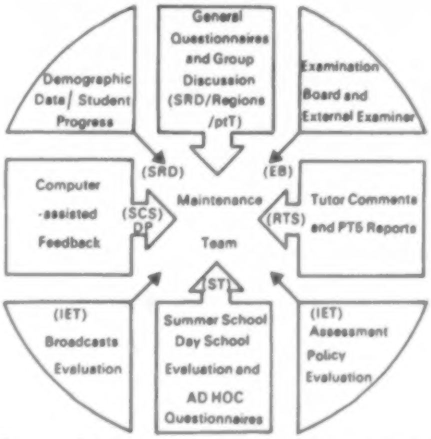
Demographic Data/ Student Progress
General Questionnaires and Group Discussion (SRD/Regions /ptT)
Examination Board and External Examiner
(SRD)
(EB)
Computer -assisted Feedback
(SCS) DP
Maintenance Team
(RTS)
Tutor Comments and PT5 Reports
(ST)
(IET) Broadcasts Evaluation
Summer School Day School Evaluation and AD HOC Questionnaires
(IET) Assessment Policy Evaluation

fig 1: Sources of data providing course maintenance team with feedback (Source:Lockwood 1979)

The 'what' and the 'why'

If we are to adequately investigate whether the wider objectives of a course are being achieved, we need to know both what is happening, and why. In terms of what is happening, we need to know how the students are interacting with their learning environment; in other words with their course materials, with their tutors, and with the learning setting. Knowing *what* is happening however only gives us indicators of performance. It does not gives us explanations for *why* that performance occurred, or what effect it had on the final outcomes for the student. We can get those explanations in the following ways:

'testing' - psychometric tests can give us insights into student aptitude and motivation; inventories can give us insights into students' approaches to learning;

asking - questions can be asked of students, tutors, and others who see students perform, about their perceptions of the reasons for problems or for particular successes

discussing - with students, tutors and others involved in the teaching learning process either in 1:1 settings or in group settings

observing - includes observing group or workshop activities, class sessions, and observing individual or linked study such as telephone tutorials, computer networking, teleconferencing

by inference - from existing data.

With open and distance learning, there are clearly considerable limits to the amount and detail of information which can be collected from student, and to the ways in which it can be collected. It is almost twenty five years since early researchers in the field commenting about the problems of carrying out student research in distance education wrote "the costs and organisational difficulties of administering psychometric tests to a scattered population in an 'open' system over which the institution can have little control are formidable" (Woodley and McIntosh 1980). That research was being carried out at the UK Open University. Since that time, a number of different models of course feedback have been tried and developed at the same institution. In spite of the economic cost, numerous courses from the self-financing programmes developed by the UKOU have taken the decision to have some form of course feedback carried out. The table below summarises the major types of approaches used.

	Passive		Active	
	Routine	Ad Hoc	Routine	Ad Hoc
Group	—	—	Model 1a	Model 1b
Individual	Model 2a	Model 2b	Model 3	Model 4

Table 1: Major types of course feedback approaches

The major groupings of course feedback type can be classified using the three variables of
- type of approach
- initiator of response.
- frequency of approach

Type of approach:

The type of approach used is one of the key differences between course feedback gathered in conventional educational settings and in open and distance learning settings. On the whole while group discussions are used extensively in the market research and social research world, their use for course feedback research is relatively limited. It may present some organisational difficulties, but course feedback using group discussions involving the tutors and students is certainly feasible in some situations. In contrast, there are diverse examples of feedback being sought from individual students.

Initiator of response: As the table shows, this can be sought either in the passive sense or it can be actively sought. By passive approaches I mean where students or other groups are given the opportunity to give feedback, but where there are no procedures set up to follow up those who do not take advantage of the opportunity. In contrast, active approaches are specifically designed to maximise the response from the group selected to provide feedback.

Frequency of approach: The third variable concerns the frequency with which feedback is sought, whether or not it is sought from the same sample or from different samples. Routine studies are those which are carried out on a regular basis. This may be at a particular time in the life of a course or at particular points in its presentation cycle. Ad hoc studies are, as the name implies, feedback studies which are specially devised to meet a particular need.

There are four main models? Let us look first at their strengths and limitations.

Model 1. Active feedback from groups
Model 2. Passive feedback from individuals
Model 3. Active routine feedback from individuals
Model 4. Active ad hoc feedback from individuals.

Model 1. Active feedback from groups

The use of groups for course feedback in the UK Open University has been used both in routine and ad hoc studies. For example, the Social Science Foundation course has built both tutor and student feedback into its residential summer school timetable. The student feedback consists both of group discussions with individual tutors about curriculum and organisational issues, and of individual feedback about tutor performance using self completion questionnaires. Other examples are of ad hoc studies on courses with innovative features which sometimes use group discussion (and observation of groupwork) for student feedback. For example, a course on Mental Handicap targeted at professionals, family members and volunteer workers used special activities aimed at mixed target audience groups. The emphasis on feedback from the groups reflected the innovative nature of this area. It should be noted that all feedback using groups at the OU has been of an active nature, with full participation agreed and negotiated with the students.

The strengths of approaches using active feedback from groups of students are most apparent where the sharing and triggering of ideas and of recall of experiences really do benefit from using a group approach. At the same time the costs of this approach occur both in the conception and development time and in the time and travelling costs of the researcher. Routine course feedback from groups of students is usually designed around existing meetings of students, or, in the case of residential schools, around groups who are resident in the same place. The time and travel cost to the student is therefore usually minimal.

The limitations of this approach are primarily methodological and organisational. The methodological limitations are those of any qualitative research. While group discussions provide a rich range of data, they do not provide any idea of the relative importance of those data. Some form of quantitative study usually has to follow if estimates or statistical analyses of any sort are needed. The organisational limitations derive from the nature of open and distance learning organisations. Namely, that even to get the simplest most basic geographical spread (for example) of groups can involve those involved in collecting the feedback in considerable time and travel costs, whether it is researchers from the centre who are collecting the data from the groups, or whether it is researchers or other staff from local centres who have to come to the main centre for debriefing.

Model 2. Passive feedback from individuals
This model operates in two forms, as is shown in the table: feedback which is routine in nature and ad hoc feedback. An early example of the routine passive feedback from individual students was the course unit report form system (CURF). This involved sending pads of report forms to students at the beginning of the course. They were asked to send a form back after they completed every unit of the course. A more recent less ambitious system is the Quality Information Card (QIC) system. This approach is similar to the now defunct CURF system in that a set of cards is sent with the course materials to students at the beginning of the course. They are asked to send in the cards if they have any concerns or problems. This time there is a much wider focus, with the whole interaction with the institution being of concern, rather than just the interaction with the course materials. Two rather different examples of studies which have been ad hoc in nature included

1) the use of computer marked assignment response forms by the maintenance course team as a vehicle for the collection of specific feedback information from students. Usually no provision is made for following up those student who, for whatever reason, do not respond to the invitation to give data, and

2) the use of computer conferencing for both direct information on student reactions to course materials, and as a source of data for the analysis of issues and topics raised by the students for discussion (see Mason 1991). This particular example, from the course *An introduction to information technology*, might possibly have been more appropriately listed under 'passive feedback from groups'. The whole notion of group participation needs further consideration with the advent of technologies which allow for real time group interaction at a distance

The simple existence of some form of regular system for feeding back opinions or concerns about a course shows students that the institution places some value on their views. The major disadvantage from the institution's point of view is that passive approaches usually suffer from low response rates. This is compounded if the feedback instruments are distributed as a matter of routine with other materials, with response rates of around 5% being not uncommon. This means that while such approaches are very useful as 'shriek' systems for major problems, they do not give the institution any sort of overall picture of what is happening or why.

Model 3. Active routine feedback from individuals
The lack of follow-up to those who do not respond to the initial invitation to send feedback on the course is, in effect, the major difference between the passive and active systems. With an active system, the aim is usually to be able to draw inferences about the activities and the responses of the whole student body who are studying a course. The reliability of the findings and the validity of the data assume considerable importance. The major example of this model currently in operation at the UKOU is the annual survey of new courses - the main course feedback system which includes all new courses offered by the university.

The advantages for the institution in being seen to have routine feedback systems apply here as they do for passive systems. The advantage over the passive systems comes primarily from the healthier response rates which are achieved. With the mail surveys just described, returns of between 70 and 90 per cent are normal. This means the data can be treated seriously in terms of its reliability and consistency. Its routine nature also means that year on year comparisons can be monitored to ensure that standards are maintained. However there are limitations to what this sort of approach can tell course teams in terms of specific detail.

Model 4. Active ad hoc feedback from individuals.
The routine feedback system cannot meet the specific needs for information for all the key stakeholders. It is here that ad hoc studies can contribute in that they can provide the sort of detail and the level of reliability needed to identify the reasons for certain problems or for new developments such as the use of CMC, or personal computers (see Jones et al.1993). However the cost of a specially designed study must be recognised as being relatively high. The development, design and implementation costs are all carried by just one study. There can also be problems with little or no comparability with data on other courses unless this has been deliberately built in.

Which model?

It would be a mistake to judge the efficiency of the different feedback models in narrow economic cost terms. Research in the Netherlands into the utilisation of evaluation findings in relation to quality assessment indicates that there is not a simple relationship between investment in and utilisation of evaluation findings, nor between the taking of measures by an institution and the improvement of education (Westerheijden et al 1992). Nevertheless the costs of course feedback do have to be considered in any decision about which model may be the most appropriate for introduction or use within an institution. The key costs can be described as follows

1. Design and development
2. Collection
3. Analysis
4. Distribution

Using these four simple cost categories to assess the effectiveness of each of the four models, the following conclusions can be drawn.

Design and development There are three major staffing options under the design and development head. They are to buy in expertise, which can give flexibility but which can be expensive; to have your own dedicated specialist staff, which is less flexible, but where expertise about institutional needs builds up, and where costs can be clearly seen; or to use existing staff, which can hide the true costs if the work is done on the margins of their time. At present all three options are in operation at the UKOU. Any of the three options could be used with the models we have been discussing.

Whatever the staff used, the costs of the design and development of any feedback instruments can be quite high if you are dealing with anything more than the simplest type of feedback. The advantage of routine studies is that the longer and more frequently the study is likely to be repeated, or the instrument used, the lower the average cost of this stage for the data acquired. The current development of a number of new routine feedback studies using postal questionnaires to individually selected students at the UKOU is a direct consequence of trying to reduce the costs of this stage of course feedback in order to cope within a diminishing budget.

Collection costs The collection costs are among the most difficult to determine. The cost of the collection stage of course feedback is usually dependent on sample size in the case of individuals, and on the number of groups involved in the case of group feedback. Mail surveys are usually cheaper than telephone or personal interviews, although careful sample designs can reduce the costs of personal interviews. For all four models, the costs of setting up interviews, of calls which do not make contact, and of sending out reminders to those who do not respond initially (for mail surveys) should be included in the total costs. Since the purposes the different models serve are very different, decisions about which model to use are rarely based solely on the relative costs of collecting the data.

Analysis Analysis costs vary greatly depending on the size, complexity and proportion of multiple choice or pre-coded answers in the feedback instrument. The analysis of qualitative data is likely to be considerably more expensive than of quantitative data for the same number of respondents. The use of statistical packages for the analysis of quantitative data can make considerable cost savings, but more frequently the demand for the greater sophistication of the analyses which they offer diminishes the net savings which can be made.

Distribution Finally, distribution costs are included in order to highlight the importance of this stage in course feedback and to emphasise the fact that there are costs attached to the dissemination of feedback findings. For small special studies, a few off-prints of reports may be sufficient. For major routine studies involving many courses and producing comparative data, there may be different reports targeted at different groups of users within the institution, different versions of the same report, giving greater ot lesser detail. There may be costs associated with workshops or with formal presentations of the data, either at a preliminary stage before recommendations are confirmed, or at the final stage when discussions are being held about action to be taken.

There is no one model of course feedback which is best in all situations. The aim must be to develop an understanding and appreciation of the costs and limitations of the different models within specific institutional situations so that decisions about the most appropriate model to use in any situation are informed choices rather than best guesses. The answers will vary not only between different situations and data needs but between different institutions and countries. Too often, the selection of a course feedback model is made on the basis of familiarity with a methodology, or for convenience. The aim must be to combine methodological appropriateness with institutional economy.

References

Jones A., Kirkup G and Kirkwood A. (1993), *Personal computers for distance education: the study of an educational innovation*, London: Paul Chapman Publishing Ltd.

Lockwood F (1979), 'Collecting Feedback during course presentation', *Teaching at a Distance No 16 Winter 1979*. Milton Keynes: The Open University.

Mason R (1991), 'Analysing computer conferencing interactions', *Computers in Adult Education and Training Vol 2, No 3.*

Westerheijden et al, (1992), *Effects of Self-Evaluations and Visiting Committees: A Survey of Quality Management in Dutch Higher Education*. Centre for Higher Education Policy Studies, University of Twente.

Woodley A and McIntosh N (1980), *The Door Stood Open : An evaluation of the Open University younger students pilot scheme*. London: The Falmer Press.

Economic Analysis of Radio and TV Universities Education in China

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ABSTRACT

This paper will provide you with an economic analysis of Radio and TV Universities Education (RTVUE) in China. It contains several key results of integrated research, including *Evaluating Educational Quality and Cost-effectiveness of China's RTVUs* (Ding, 1991). The paper will emphasise the economic advantages of China's RTVUE and the comparative analysis of the economics of distance versus conventional education. It will be shown that during the first decade of their operations (i.e., in 1980s), China's RTVUs have achieved great success in their performance from the viewpoint of educational economics. In addition, the paper will analyse some new changes and trends in the economics of China's RTVUE from the later part of 1980s to the beginning of 1990s and identify some internal and external factors which have their impacts on the development of the RTVUs system. The paper argues that the economic advantages of China's RTVUE could be retained and improved by deepening educational reform and the continuing development of distance education in the 1990s. It is believed that distance education provided by RTVUs has a great potential and a bright future in China and will become a consolidated component of China's higher education system and life-long education system.

FOUR SOCIO-ECONOMIC DRIVING FORCES FOR THE DEVELOPMENT OF DISTANCE EDUCATION

Distance education can be traced back more than a hundred years, but its rapid growth has begun from 1970s in both developed and developing countries of the world. I have proposed a framework of the rationale for development of distance education consisting of four principles:

-- The first one is that, after the World War II, accelerated economic growth, scientific and technological advance in various countries have produced a great demand for education at scale which has become the driving force for the development of distance education.

-- The second is educational philosophy, ideas such as educational equality and democracy, popularisation and diversification of higher education, and the development of adult education and life-long education have built the ideological and theoretical basis of development of distance education.

-- The third is the rapid development of modern sciences and technologies, especially information and communication technologies and their application to education. These constitute the material base for developing distance education.

-- Finally, distance education and open learning have been chosen as a strategic direction for development of education systems in many countries either developed or developing, because most governments give emphasis to intellectual investment and face financial problems in their budget for education.

(Ding, 1988, and Ding, 1989a)

Chinese distance educators have a common interest in 'Economics of Distance Education', the theme of this VIIth Annual Conference of AAOU. I have followed this research subject in the past ten years and have conducted and published several research works (Ding, 1983a, Ding, 1983b, Ding, 1991). This paper contains some key results of my recently integrated research, including *Evaluating Educational Quality and Cost-effectiveness of China's RTVUs* (Ding, 1991).

THEORIES AND METHODS FOR ECONOMIC ANALYSIS

In my research on economic analysis of China's RTVUE, I have introduced and adapted some basic ideas and formulations of western distance education researchers (e.g., Kaye, A and Rumble, G., 1981, Orivel, 1982, and Sewart, D., Keegan, D. and Holmberg, B. (eds) (1983) etc.). My original contributions are as follows:

-- to introduce and adapt the basic theories and methods of education economics to Chinese context, especially to China's distance education system with its multi-level administrative structure, great range of educational programs and multi-media teaching model;

-- to create some new concepts, variables and ideas for economic analysis, for instance, the understanding of relationship between cost-efficiency, cost-effectiveness, and cost-benefit in Chinese context, some new cost variables, functions and structures;

-- to design several specific approaches to conducting the cost analysis and calculation for CRTVUS with a multi-allocation funding regime and a multi-level, multi-institution counting system, for instance, the specific schemes for dividing all cost into fixed and variable, direct and indirect etc.;

-- to set up an integrated statistical mechanism combining a general survey with some sampling surveys to collect and accumulate the necessary economic information and statistic data;

-- to initiate some mathematical models and formulas to conduct economic analysis. For instance, the model of homogenising educational outcomes, the global model and the multi-level model for calculating the per student cost annually;

-- to clarify some existing problems in comparison of economic performance between CRTVUS and other higher education institutions, and to introduce some new methods for a more equivalent comparison.

For further details, see Ding, 1991 and Ding, 1989b.

ECONOMIC ANALYSIS OF RADIO & TV UNIVERSITIES EDUCATION IN CHINA

The economic advantages of China's RTVUE

China's RTVUs system as a nationwide and multi-level distance education provision has a number of economic advantages in comparison with the conventional universities and other adult higher education institutions in China.

1. The per student cost is much lower than that of the conventional universities. The average institutional cost (including all fixed cost consumed by RTVUs and broadcasting organisations at various level and variable cost consumed by TV classes in both current expenditure and capital depreciation) of RTVUs was only about one fourth (1/4) of the average current expenditure of the conventional universities in 1988-1989. Except the capital depreciation, The average current expenditure of RTVUs was only about one fifth (1/5) of that of the conventional universities in the same academic year. The average successful rate (i.e., the proportion of graduates awarded qualification within the minimum time) was more than 80% in the RTVUs. In the late of 1980s, in the case of statistics group solely including undergraduates, the per annual cost of RTVUs (average institutional cost) accounted for only about one fourth (1/4), one third (1/3) and two fifth (2/5) of that of the conventional universities (average current expenditure only) on Humanities, Economics and Sciences and Engineering courses respectively.

2. From the single-item variables such as student-teacher ratio, student-staff ratio, per student allocated capital value, per student occupied building area and campus area, the RTVUs (73 students per teacher, 65 students per staff, RMB 1308 yuan, 10.8 square meters, 0.13 hectares per student respectively) has its economic advantages in the efficiency of using various education resources in comparison with both conventional universities (5.5 students per teacher, 2.2 students per staff, 16860 yuan, and 41.8 square meters per student) and other adult higher education institutions as well.

3. From the viewpoint of funding regime, unlike the conventional universities which receive most of their funding mainly from the governments' budgets, the RTVUs are a suitable and feasible way to provide qualified higher education and other technical, vocational and continuing education and training by using various social resources. The results show that the RTVUs receive financial budget from governments at various levels which has in the academic year of 1988-1989 covered about 52% of the total funding. An important fact is that the central government offers 7% of the financial budget (i.e., 4% of total funding) only, and other 93% of the budget (i.e., 48% of total) comes from provincial and local governments. The educational investment from various societies makes a significant contribution to the RTVUE by affording nearly 43% of total funding. The tuition fee for students accounts 5% of the total funding.

4. Research on cost structure has shown that the RTVUs could reduce its average fixed cost per student sharply by increasing its number of total enrolled students. Unlike the conventional universities where it is difficult to reduce the average variable cost in both academic and accommodation expenditures.
See Ding, 1991 for the details.

The role of educational technologies

The economic advantages of distance education system mainly come from the progress of educational technologies, the development of instructional design, and the advance of educational organisation and management. In which, the information and tele-communication technologies including various educational media play an important role. At present, the China Education Television (CETV) is using two channels to transmit the courses offered by CRTVU for 12 hours per day, accounting for 4368 hours per year via the satellite located in longitude east 110.5 degrees. The China Central Television (CCTV) transmits the courses offered by CRTVU for 22 hours per week, accounting for 880 hours per year. So in total the courses of CRTVU are transmitted for 5248 hours every year. In addition to this, the CETV transmits 310 hours of programs of rural education and training courses for CRTVU. Besides, regional radio and TV networks transmit some audio-visual teaching programs of standard courses and some courses offered by provincial and local RTVUs.

The RTVUE's contribution to higher education and development of socio-economy of China

The CRTVUS as a modern distance education system is extremely suitable for contemporary China with its vast territory, huge population, weakly developed education system (especially higher education), financial shortage, and fast growing economy and social changes. It has made a great contribution to China's higher education system and China's economic and social development. RTVUs mainly offer higher education of short-cycle courses in two-three year of full-time study or three-five year of part-time and spare time study. From 1982 to 1991 there were 1.453 million graduates from RTVUs, which equals 31% of the total graduates from conventional universities and colleges at the same period, and 58% of the graduates from other adult institutions of higher education. This means that about 17 out of 100 total university graduates in China during 1982-1991 were from RTVUs. In 1992 there were 146,000 entrants, 121,000 graduates and 330,400 enrolments. The results of *Trace Survey on RTVUs' Graduates* (Huang & Zhao, 1990) and *Evaluating Educational quality and investment Effectiveness of China's RTVUS* have shown that RTVUs provide not only a good quality education, but also qualified graduates with high competence and sound performance. The comments from employers indicate most of RTVUs' graduates (80-90%) are well qualified in their professional career and equal or better in their performance in comparison with graduates from other institutions of higher education. RTVUs have become a important part of China's higher education system. They make a significant contribution not only in extending the scale of higher education, but also in adjusting the proportion of normal to short-cycle courses higher education, changing the structure of study fields, disciplines and specialities for higher education, and addressing the imbalance of geographical distribution of higher education. Since 1986 CRTVU has cooperated with some ministries of the State Council to provide 38 professional, vocational and technical education and training programs of which there have been more than 3 million recipients. In addition, the regional RTVUs also have provided their own programs according to local needs, so the total number of learners involved in these programs has been over 10 million. China's RTVUs system has made its great contribution to economic construction and social development by producing a significant number of qualified professional personnel and skilled workers.

New changes and trends from the later part of 1980s to the beginning of 1990s

The research has shown that there have been some new changes and trends to be worth consideration.

1. The infrastructure of RTVUs including a national broadcasting network with both CCTV and CETV involved via satellite and microwave system has reached its reasonable scale after continuing investment from the governments at various levels since the later part of 1980s (including the World Bank Loan Project). But the numbers of entrants and enrolments for short-cycle courses of higher education of China's RTVUs have dropped down since 1985 (273,100 and 673,600 in 1985, 103,500 and 334,700 in 1991 respectively).
2. The total number of transmission hours of TV programs has been increased from 1320 in 1985 to 5558 in 1991, but the average number of

enrolment for each course and the recipient ratio (the percentage of TV program audience over total enrolments in a certain course) have been decreased significantly. Accordingly, the average number of face-to-face tutorials (even lecturing) for each course has been increased.

3. Due to the above two facts and other relevant factors, the cost-effectiveness of RTVUE and the cost-efficiency of various educational resources have been reduced since 1985/1986. Both average fixed and variable cost have been increased since 1985/1986, as a result, the average cost per student increased as well.

Some exogenous and endogenous origins which have given their influences on those changes and trends mentioned above can been identified.

1. China is a highly centralised country in all aspects of the society. The policy making and development planning of RTVUs system are under the control of the State Education Commission. There have been a significant shift of entrance policy from open to close and a limited annual plan of recruiting new entrants since 1985/1986.

2. A weakly educated generation caused by "the Cultural Revolution" has been picked up by various opportunities of education and training in 1980s. China's economic reform is just on the way. In such a transformation period, some government officers and employers pay attention only to the present economic benefits and have not developed an awareness of the importance of RTVUE in training their employees.

3. There have been some problems in development and delivery of multi-media course materials for a long time. For instance, "how to design the course materials suitable to independent study in spare time and the learning psychology and habits of Chinese adults" is still an open question

PROSPECTS OF RTVUE IN CHINA

Economic advantages reached by RTVUs in 1980s could be retained and improved by deepening educational reform and the continuing development of distance education in 1990s. More open access policy and improvement of the quality of course materials and of multi-media teaching will be the key measures.

As the information society arrives, modern tele-communication transforms the earth into a village, and much more international competition arises between various countries. Highly educated professional personnel and a skilled labour force are the key elements for developing the economy and increasing the comprehensive power of any nation. So all governments and societies in the world are putting their emphasis on education and training, and distance education and open learning are the strategic path and a high priority .

Economic considerations play an central role for educational policy-making, but they are not everything. Modern society should have not only the strong economic power and wealthy material life, but also a developed democratic politics and rich social and cultural life. The future world will be a learning society in which knowledge and culture will have unique functions. Adult and life-long education and training, open and independent learning have a bright future. Distance education will play an significant role in the future. The ideal of educational equality and life-long continuing education, training and learning will be reaching its goal step by step in the next a few centuries.

REFERENCES

Ding, Xingfu (1983a), 'Less input and more output -- an economic analysis of cost structure of China's RTVUs', *China's RTVU Education,*, 7, 1986.

Ding, Xingfu (1983b), 'A strategic way of educating and training qualified personnel -- on the important role of RTVUE in the China's higher education system', *China's RTVU Education*, 8, 1986.

Ding, Xingfu (Chief editor) (1988), *An introduction of distance higher education*, CRTVU Publishing House, Beijing.

Ding, Xingfu (1989a), 'The essential driving forces for historical development of distance education', *Education Research*, 12, 1989, Beijing.

Ding, Xingfu (Chief editor) (1989b), *An introduction of distance higher education in the world*, CRTVU Publishing House, Beijing, 1990.

Ding, Xingfu (Chief-Editor) (1991), *Evaluating educational quality and cost-effectiveness of China's RTVUs*, Wuhan Publishing House, China.

Huang, yuxian and Zhao, yuhui (eds) (1990) "Trace survey on RTVUs' Graduates", in Journal of *China's RTVU Education*, No.9,1990

Kaye, A. and Rumble, G. (eds) (1981), *Distance teaching for higher and adult education*, London, Croom Helm.

Orivel, F. (1982), 'Economic justification', preparation of a proposed World Bank Education Project in China: Television University. IREDU-Dijon.

Videoconferencing in Distance Education: Economic and Pedagogical Considerations

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ABSTRACT

The paper outlines the instructional effectiveness and operational efficiency of videoconferencing in a distance education environment. It describes an experimental application of videoconferencing in an undergraduate marketing course at Athabasca University. The experiment had the dual purpose of testing the suitability of the technology as a supplement to conventional print-based distance education, and as an alternative to face-to-face instruction in multiple campus situations requiring instructor travel or teaching teams.

VIDEOCONFERENCING IN DISTANCE EDUCATION

The Educational Setting

Athabasca University (AU) is Canada's open university, focusing primarily on independent study through print-based instructional materials and student initiated telephone support. To meet increasing demand for tertiary level business education, AU was awarded a special government grant in 1991 to offer a Bachelor of Commerce degree through its Edmonton and Calgary learning centres. The main university campus is located in Athabasca, Alberta. Edmonton is 150 kilometres and Calgary 450 kilometres south of Athabasca.

AU's challenge was to provide consistent quality instruction to two homogeneous groups of students in these remote learning centres. On-site classroom lectures were employed for designated core courses. The delivery method for elective courses was either traditional home study or guided independent study which combined print materials with a limited number of lectures, audio teleconferencing, or computer-mediated communication. For the core courses, AU professors traveled between the two sites weekly. The distances involved required that travel be by air.

Athabasca University, in conjunction with Alberta Government Telephones (AGT), undertook a pilot project from October through December, 1992 to test the instructional and economic viability of videoconferencing as an alternative to face-to-face delivery. AGT's videoconferencing facilities in Calgary and Edmonton were used for the project. Three of thirteen classes in AU's Principles of Marketing course were taught via interactive videoconferencing to students in Calgary and Edmonton. Calgary was used twice and Edmonton once as the originating site to allow all students exposure to the dynamics of being in a remote site.

The Technological Environment

Videoconferencing enables groups in two or more remote sites to visually and orally interact in an environment which appears to be real-time.

Sites are connected by two telecommunication lines, one each for audio and video. The audio component is virtually real-time, with a negligible time delay. The video images are digitized, compressed and transferred electronically through a telephone line to the receiving site, where they are decompressed. The process is extremely fast, giving users the impression that the broadcasts are live. Although synchronization of audio and video is nearly perfect, delays in receiving the full motion video are sometimes noticeable and are often interpreted as audio problems.

Each studio was equipped with hidden ceiling mounted cameras and two large monitors, a video monitor to view the remote site, and a graphics monitor to project images from a graphics tablet or videotape player. Control panels in each site enabled the instructor and students to control both their own monitors as well as the cameras in the opposite site. This last feature allowed the instructor to zoom in on a participant or pan either the originating or remote site. A special ceiling mounted camera, called a graphics tablet, relayed handwritten messages or pre-printed graphics, either live as an 'electronic blackboard' or still, to both sites on the graphics monitor. In addition, pre-recorded videotapes were broadcast to both sites simultaneously on the graphics monitor. Finally, the videoconference sessions themselves were recorded in VHS format.

Goals of the Study

The pilot project had both economic and pedagogical goals. Economically, the primary goal was to seek ways of minimising course delivery costs while maintaining the same level of quality as comparable classroom lectures. Direct travel costs and instructional time were specifically targeted for reduction, as were the indirect costs of reduced productivity associated with instructor downtime and travel fatigue.

The main pedagogical goal was to test the effectiveness of the videoconferencing medium in a distributed classroom setting. The effects of the medium on intergroup socialisation, interaction, and competition were studied. A related goal was to assess the effectiveness of various teaching techniques.

The field test was intentionally limited to three videoconference sessions of three hours each primarily due to the relative inexperience of the instructional team. As a result of this limited field study, some of the economic and pedagogical outcomes cannot be considered conclusive. However, many of the favourable outcomes, both anticipated and unanticipated, warrant further investigation.

Economic Outcomes

Three types of savings were immediately evident: the elimination of travel costs, a 50% reduction in direct instructional time and costs, and apparent improvement in faculty productivity due to the elimination of travel stress and downtime.

Videoconferencing enabled the instructor to teach two groups simultaneously from one location, resulting in substantial savings in in-class instructional time and costs. The more sites involved, the greater would be the savings.

A final indirect economic benefit was the reduction of stress and fatigue associated with frequent travel and reduced downtime, resulting in higher productivity and more time to attend to other academic responsibilities.

Technology Costs

These savings however, must be considered in light of the capital requirements. The minimum cost of base-level hardware is approximately $50,000 (CDN) per site, increasing with improved broadcast quality and auxiliary audio visual equipment. The acquisition of videoconferencing hardware is economically viable only if a substantial number of courses and students are involved at each site. Similar observations were made by Phillips (1987) at Pennsylvania State University.

The alternative to acquiring videoconference facilities is leasing. The AGT videoconference studios rent for $275 per hour at the current commercial rate. Although leasing would be reasonable for certain applications such as conferences or meetings where extensive travel is involved, the costs of leasing in this study would have exceeded the cost savings identified above. In Canada, videoconferencing is considered a broadcast technology subject to the regulations and prescribed rates of the Canadian Radio and Television Commission, a government agency. Special rates for educational uses are currently being negotiated, which will reduce delivery costs.

Pedagogical Outcomes

The economic benefits noted above are not unique to videoconferencing. The cost savings are actually greater using conventional audio teleconferencing, as only one dedicated telephone line is required, the capital infrastructure is less expensive to acquire or lease, and the same benefits of reduced travel and instructional time are realized. However, audio teleconferencing lacks a visual component.

Accordingly, to justify the use of videoconferencing, the added pedagogical benefits must compensate for the higher set-up and delivery costs. In this pilot project, various instructional techniques were employed in testing the video technology, and the impact of the videoconferencing environment on the learner and the instructor were studied.

Instructional Strategy

Marketing education poses various instructional problems which have not been effectively solved by conventional distance education strategies. Economic conditions, consumer behaviour and marketplace strategies are dynamic. This is problematic in distance education courses which rely heavily on print-based instruction which require longer preparation and revision lead times.

Marketing practice, like many aspects of business management, involves team work and group decision making. The case study method, where groups of students solve marketing problems in real-life simulations, is often employed to emulate marketing practice and the marketplace's competitive nature. This methodology cannot be employed in distance education courses which focus on independent study.

Marketing lends itself to the use of multimedia. For instance, in illustrating a media mix for product promotion, a multimedia approach is required to illustrate the effectiveness of print, radio, and television advertising. Although multimedia materials and actual products may be included in a course materials package, cost and currency become an issue.

In the field study, the objective was to apply proven classroom techniques, such as case studies, competitions, and multi-media presentations in a distance learning environment where student groups were geographically separated. Videoconferencing was viewed as the vehicle for providing the 'extended classroom'.

Non-interactive lecturing, or the 'talking head' approach, was deliberately kept to a minimum as it was not felt to be an effective use of the technology. In a pilot project at the University of Minnesota involving 276 participants in a variety of courses, Kolomeychuk and Peltz (1991) noted that a high level of interaction is important in teaching and learning in order to increase attention and motivation levels, especially in the remote site. In disciplines where non-interactive lecturing is more appropriate, lower cost media such as audio teleconferencing should be considered.

Both the instructional strategies and the videoconferencing environment had a variety of impacts on the learners and the instructor.

Impact on the Learners

Each session was videotaped for both sites and all students were surveyed with a course-end questionnaire. Students were asked to comment on the quality of the technology, its educational applications, and their personal impressions as participants. None of the students had prior exposure to videoconferencing although most had participated in audio teleconferencing.

Quality of Technology

With respect to the quality of the videoconference broadcasts and facilities, 75% found the quality of the full motion video, still image graphics, and the physical facilities to be good or very good. As in the University of Minnesota study, however, the audio quality was rated much lower, with only 38% of the students rating it good or very good. Several audio transmission and reception problems occurred over the three sessions.

One concern was whether the technology would be unobtrusive or distracting, even with the hidden cameras. 46% of the students indicated they had prior anxieties, but in all cases these were relieved by the end of the first class. 50% of the students noted that the technology was 'invisible'; several indicated that only several minutes of exposure were required to become comfortable. The remaining 50% found the technology distracting, primarily due to audio transmission problems.

The students gave high ratings to the innovative use of the graphics monitor. As an 'electronic blackboard' for illustrating concepts, 92% of the students found the technology effective or very effective. Similar high ratings were given for other uses of the graphics monitor: sharing product packaging examples (85%); highlighting material in the textbook (85%); and presenting examples of print-based(92%) and television advertising (92%).

When at the remote site, 58% found the videoconferences less effective than a traditional classroom lecture, primarily due to technical (audio) difficulties. When at the originating site, 38% found the videoconferences more effective, 31% less effective (again primarily due to technical difficulties) while 31% noted no difference.

Various methods were used to encourage peer interaction between the sites and students gave high ratings to the following activities: inter-site product logo quizzes(85%); inter-site games and competitions (88%); and a Pepsi/Coke 'taste test' (69%). In terms of inter-site peer interaction, 38% did not hesitate to interact; of the 62% who hesitated, the majority felt uncomfortable because they had never met participants at the other site, hilighting the need to incorporate peer social interaction activities into the instructional material.

85% of the students felt there were sufficient opportunities to ask the instructor questions, and most students (61%) did not hesitate to interact with the instructor at the other site. Those who did hesitate blamed audio problems. When asked about their level of class participation, 54% noted no difference, and 42% indicated they participated more in the classroom lectures.

Educational Applications

Although 70% indicated that the videoconferences made the lectures more stimulating, interestingly, 58% stated that the videoconferences did not enhance their understanding of the subjects taught.

81% of the students felt that Principles of Marketing was an appropriate course for videoconference delivery. 81% were generally satisfied with the method of course delivery, with 73% indicating that they would recommend a videoconference course to others or take another themselves. However, 65% of the students indicated that they would have concerns about the instructor not being on-site if videoconferencing was used for the entire term.

Although 81% stated that they prefer traditional classroom lectures over videoconferencing, 69% indicated that they prefer videoconferencing over independent study courses.

Students' Impressions

When asked what they enjoyed most about the videoconferences, students provided a variety of answers, from the opportunity to interact with peers to the opportunity to explore a new technology. In terms of dislikes, the answers were equally varied. The majority focused on technical problems, such as set-up time, audio problems, and the synchronization of audio and video. Concern was expressed by many about the length of the sessions. The consensus was that the standard three hours, with a fifteen minute break, is too long for a videoconference session.

Impact on the Instructor and the Educational Environment

In the field study, the objective was to apply proven classroom techniques, such as case studies, competitions, and multi-media presentations, through the use of the video technology, in a distance learning environment where student groups were geographically separated.

While reducing travel stress, videoconferencing may create new stresses for the instructor as greater preparation and rehearsal time is needed.

In addition to leading the session, the instructor is constantly operating cameras in both sites, alternating between video/graphics monitors, and videotape systems. Timing and sequencing are crucial factors, as participants can be easily distracted from the subject matter if time lags occur due to the operation of the technology. Rehearsal is essential to master the technology, which has a steep learning curve, and the natural tendency to question which images are being transmitted. The obvious solution is to use an independent camera operator. However, the researchers believe that the camera is a crucial instructional tool, necessary for assessing and fostering group dynamic and interaction and must be used as such by the instructor.

In the videoconference sessions, the 'extended classroom' encompassing students in both sites, resulted in a different set of teaching dynamics for the instructor. There is a natural tendency to either focus on the originating site or overcompensate by focusing constantly on the remote site.

When innovative presentation techniques or interaction are incorporated, an assistant is required to help coordinate activities and control the technology at the remote site, adding to the cost. This requires effective teamwork including coordinated planning in advance and synchronized use of the technology during the session. It must also be noted that having an assistant in the 'extended classroom' changes the group dynamic. These tasks, which were performed by one of the researchers, could be done by on-site support staff or designated students.

In the pilot project, several technical factors complicated the instructor's delivery strategy. As in teleconferencing, the instructor must speak into a microphone, requiring a toning down of 'teacher voice'. In a videoconference session it is more difficult to adjust as the instructor faces both the local student group and the remote group on screen. There is a natural tendency to project to the group at the remote site, causing some audio interference.

The positioning of the video monitors caused unexpected problems. In the originating site, the instructor was in the traditional position at the front of the classroom, with students at both originating and remote sites facing forward. However, if the students in the originating site wanted to see the students at the remote site, or view the graphics monitor, they had to turn away from the instructor. This caused audio problems as only shared unidirectional microphones were used, requiring the student to be facing forward. Establishing eye contact, monitoring body language, and facilitating interaction in the 'extended classroom' posed a problem, either due to movement in the originating site or the relatively small video image of the remote site. Multidirectional or individual lapel microphones would solve many of the audio problems experienced.

To alleviate these problems, the instructor projected her image on the graphics monitor in the originating site. However, this created its own problems. The students could see the instructor's image at the front of the room but had listen to her 'displaced' voice coming from behind. Furthermore, while the instructor viewed the students at the remote site on the video monitor, she was distracted by seeing both her own image on the nearby graphics monitor and the backs of the students heads in the originating site.

In the pilot project, one group was substantially larger, and as a result some students could not be viewed on screen, despite the zooming capabilities of the cameras. It was noted that these students quickly became nonparticipative, even in group activities. The researchers feel that it is essential that all participants be within camera range.

Instructional materials must be visually appealing and engaging, appropriately matched with the delivery medium. Presentation of static linear text, similar to slides or overhead transparencies, is not an appropriate use of the medium. The same impact could be accomplished with conventional teleconferencing combined with printed handouts. To maximise the presentation potential of the technology, graphics should be dynamic and animation or full-motion video should be used where appropriate.

The instructor noted that other technologies might effectively augment videoconferencing and perhaps reduce delivery costs. For instance, the video component is not always necessary for the entire session. Occasionally, communication by facsimile, telephone, or electronic mail is sufficient to link the sites, especially when students are engaged in group work requiring minimal instructor input or assistance.

CONCLUSIONS AND FUTURE DIRECTIONS

Although the pilot project was limited in scope, it provided valuable insights into the economic implications and educational applications of videoconferencing. As an instructional medium, videoconferencing produces substantial direct cost savings and indirect savings through reduced faculty stress and fatigue. However, capital and operating costs of the technology remain prohibitive unless student and course numbers are high.

From a pedagogical perspective, videoconferencing is an effective medium for delivering courses in a distributed classroom environment or as an enhancement of conventional print- based distance education. It is particularly useful in courses where group interaction and dynamic visual presentations are crucial elements of the teaching and learning process.

From the students' perspective, the medium provided a stimulating learning environment and, generally, the technology was 'seamless'. However, the study pointed out the need for improvement in the quality of the audio/video transmissions, the need for greater interaction among peers between the sites, and the need for appropriate training in the effective use of the technology.

From the instructor's perspective, proficiency in the use of the technology is crucial. The most effective use of the medium is interaction and multimedia presentations, and the instructor must design new instructional techniques compatible with the technology. The delivery medium is particularly rewarding for dynamic, innovative educators seeking creative ways of solving instructional problems.

In future studies, the researchers hope to experiment with new technologies, such as desktop videoconferencing. Real-time group conferencing, by definition, poses place constraints. With desktop videoconferencing, like audio teleconferencing, the place constraint is removed as students may participate in conferences from the convenience of their home or workplace. As the technology is refined, the costs and instructional benefits of PC-based videoconferencing may prove very attractive to distance learning institutions.

REFERENCES

Kolomeychuk, T. and D. Peltz (1991), 'Assessing the Effectiveness of Interactive Compressed Video at the University of Minnesota' *Telecommunications Development Center Research Report No. 20* , December 1991.

Phillips, D. (1987), 'Videoconferencing at Penn State' *Technical Horizons in Education Journal*, Volume 14, Number 8, 52-54.

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The Economics of Different Models for the Use of Distance Learning Courses from Other Institutions in Terms of Human Resources

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ABSTRACT

Open Universities can choose between developing their own courses from scratch or purchasing courses from other institutions. There are a variety of models for using courses from another institution. This paper gives a case study of the variety of ways in which the British Open University Mathematics Foundation course has been and is being used by other institutions, from a human resource perspective. It includes examples from Canada, Hong Kong, Macau, Eire and Singapore .

INTRODUCTION: CHOICES WHEN DEVELOPING NEW COURSES

Some institutions, like the British Open University (OU) and Indira Ghandi National Open University were set up to primarily develop their own courses in house. Whereas others are set up exclusively using courses developed elsewhere, e.g. The Open College of the University of East Asia, Macau and the Open University Degree Programme of the Singapore Institute of Management. Other institutions were set up using a mixture of courses produced by themselves and by other institutions e.g. the Open Learning Institute of Hong Kong (Yuen et al 1990). There are many factors involved in making decisions about whether, or how, to use bought in course materials, including the educational, economic, cultural and political environment in which the institution operates. Human resource factors, both quantitative and qualitative, are very important and also relevant to the risk involved for the institution.

This paper will first look at the options, or models, available to institutions, from a human resource perspective and then at the particular case study of the models in the use of the OU Mathematics foundation course: *M101* (Open University 1978) .

THE MODELS

All models require a core of staff to perform essential tasks e.g. printing and/or purchasing materials, distribution to students, student record keeping, publicity, the appointment and management of tutors, the monitoring of their work and the marking of examination scripts. Such *fixed* human resources will be required irrespective of whether courses are developed in house or by an external institution. This paper will not be concerned with them but with the other *variable* human resources which depend upon the model chosen. These can be divided into *set up* and *running* costs, which will vary according to how the course is developed and should be separated from other factors such as the number of students enroled. Apart from the financial cost of human resources, institutions need to consider the availability of suitable people. Requirements for expertise in subject areas and in distance education vary considerably between models.

Developing courses in house

In general this is a very expensive option in terms of human resources. Usually the time scale for developing a course is several years and considerable expertise in the production of distance learning materials, as well as the academic area, is required. Multi-media courses also need human resource expertise in each media used. All these resources are needed up front, in that they are required several years before the course is presented. Hence this option is really only available to institutions if they have a very considerable resources for set up over several years. It is a high investment, high risk option: if the course is unsuccessful the investment is lost. However it does give the institution flexibility to tailor the course to its own particular needs.

The human resources required for setting up a course are considerably more than for running it and therefore there may be an uneven staffing requirement and problems in attracting people with the required expertise.

Models for using existing course materials

The expertise in the production of distance learning materials is considerably reduced if materials are purchased *off the shelf*. The disparity between the human resources required in setting up and running courses is reduced. There are several models, but not all will be viable for every institution.

Purchaser of teaching materials

An institution may buy in course materials *off the shelf* and integrate them within its own course structure, producing its own assessment material and arranging its own validation. Thus the human resource set up requirements and the lead in time are greatly reduced, but running a course is much the same as if the course was produced in house. Using an incomplete course or an incomplete programme of courses may require additional human resources in the set up phase to overcome compatibility problems.

Whole course user

Compatibility problems are avoided by running a whole course, or programme of courses including the assessment structure, thus reducing the required *variable* human resources for both setting up and running the course. Some academic and administrative human resources are needed for setting up and adapting to the local situation but there is likely to be a smaller lead time, than for the purchase and integration of subsets of course materials. Some *variable* human resources are also required for running the course: assessment material production and validation procedures.

Institution as tutor

Some institutions can use whole courses and run the course timetable simultaneously with the originating institution, using the same assessment materials and procedures. Tutors are appointed locally, but other academic and administrative support is all provided by the originating institution, whose qualification is awarded. The *variable* human resource costs for this model are minimal. Some set up costs might be involved in adapting to the local situation, but there is no need for validation, or for producing assessment materials. This is a very low risk strategy: since if a programme is unpopular, there is the full back position of students transferring to the originating institution and being tutored directly from there, at a distance. This is a an inflexible model however, for the tutoring institution, which must follow decisions made by the originating institution.

Collaboration with Validation

This is similar to the institution as tutor model, but it provides more flexibility and local autonomy. Initially all courses would be offered in the institution as tutor mode, with the option to adapt more to the local situation and later to introduce other courses of local interest within programmes, without loosing the fall back position of students being able to transfer to the originating institution. Hence this is a low cost option in terms of human resources, but it provides opportunities for evolution (which require additional human resource).

Comparison of the models

All models include *fixed* human resource costs in both administrative and academic areas. These depend upon the nature of the institution, the number of students and tutors etc. The other *variable* human resource requirements depend upon the model. Table 1 below summarises them for the above models. Costs refer both to quantity and quality (expertise) of staff.

MODEL	set up costs	set up time	running cost	flexibility	risk
Develop in house	very high	long	medium	high	very high
Purchase teaching materials	medium	medium	medium	high	high
Whole course user	low	short	low	medium	medium
Institution as tutor	very low	short	very low	low	very low
Collaboration with Validation	very low	short	very low	medium	very low

Table 1 Comparison of the models in terms of their *variable* human resource costs.

CASE STUDY OF *M101*

M101 is the OU's Mathematics foundation course. It is a full credit course in OU terms, which is one sixth of an OU bachelor's degree. It was written in house with first presentation 1978, but it has been updated more recently. The *M101* course materials have been used by several institutions world wide in a variety of ways and so it provides a case study of the different models in action. In all the examples below, *fixed* core administrative and academic resources were required, including the monitoring and management of tutors.

Developing the course in house: the British Open University (OU)

The *M101* course was developed by a large team of full time experienced OU staff over about three years during in a period of reasonably plentiful resources. The team included academic writers, television producers and academic editors and a course manager, most of whom would have also been involved with other work. The University contributed human resources for publishing and the BBC for television, radio and audio productions. So the total set up human resource required is difficult to estimate, but it would have been about twenty person years, including considerable specialist academic, distance learning and media expertise.

The *M101* course is run annually by one administrator (the course manager), one academic (the course team chair) with its examination and assessment board including five other academics and an external examiner. Running *M101* takes about a third of the course manager's and the chair's time and about five days of the examination and assessment board member's time (Source Dr R.B.Coates course team chair). There is also some general Faculty human resource contribution to the course, but in total, about one person year (half being academic) is required per presentation,.

Using the course in other institutions

Soon after *M101* completed its first presentation, the possibility of using its materials in other institutions was being explored. The course was used in a variety of ways corresponding to different models. E.g. half the course was purchased and used by North Island College, Vancouver, Canada from 1980; the whole course was used by the Open College of the University of East Asia, Macau from 1982; in 1984-6 the Open University Consortium, Vancouver developed courses based upon part of *M101* together with some material developed in house; in 1989 the Open Learning Institute of Hong Kong offered the whole course; in 1990 *M101* was offered via an institution as tutor model in Eire; and in 1994 the Open University Degree Programme of the Singapore Institute of Management will offer *M101* in a collaboration with validation model. There is at least one example of each of the above models in practise for *M101*.

Purchasers of teaching materials: North Island College (NIC) and the Open University Consortium (OUC), Canada.

NIC chose materials from just over half of *M101* for its distance learning Calculus courses MAT 181 and MAT 182. The courses were offered as a pair and the content chosen to fit in with the requirements of first year Junior College Calculus in Canada to enable transfer to universities in the area. NIC used its own assessment strategy, so produced student manuals (North Island College 1980 and 1981) and assessment materials for both courses. These were produced by one NIC academic advised by one OU academic (Dr R.B.Coates) over a period of about a year. The running of the courses was undertaken by the NIC staff along side their other duties and probably constituted about half a person year, compared to about one person year for the set up.

Had NIC run the whole of M01 one might extrapolate that the human resources required would have been doubled to about two person years set up (over one year) and one person year running the course.

Several years later OUC (a Canadian consortium including several Universities and the Open Learning Institute) produced a similar pair of distance learning courses (Open University Consortium 1984 & 1985) based on half of the updated *M101*, plus some additional calculus material produced in house by by a team which included two OU academics (Dr R.B.Coates and Mr D.Goldrei), a BBC OU TV producer (Mr J.Koumi) and several local academics.The human resource effort which went into producing the additional material in house was proportionately approaching that of the original *M101* OU production. The production period was about two years. The human resources required to run the courses appear to be similar to those in NIC.

Whole course users: Open College (OC), Macau and Open learning Institute of Hong Kong (OLIHK)
Soon after NIC had expressed an interest in *M101*, the Open College of the University of East Asia (Macau) was set up. It presented a programme of OU courses, including *M101*. Several OU staff were seconded short term, to help set up the operation. Two OU Maths academics (Mr R.Duke and Mr J.Trapp) worked with OC administrators to set up *M101* in well under a year. The set up human resource was about half a person year. The OC followed the pattern of assessment of the OU, adapting assessment material. It ran two presentations of the course per year with one academic (in the early years this was Dr M Robertshaw now of OLIHK) and administrative support. The academic was also responsible for tutor selection and management and was involved in setting up subsequent courses in the programme. As the programme expanded, so did the staff and the author was seconded from the OU to be Head of School, but the human resources required to run *M101* and other similar OU courses in the programme remained at around a quarter of a person year per presentation (excluding core administration tutor management and monitoring).

In 1988, the Hong Kong government decided to set up its own Open Learning Institute on the same lines as the OC. *M101* was part of the degree programme. The course was set up by the newly appointed Dean Prof N.Reid, from the OU, and Dr Robertshaw (formerly of the OC) with the OLIHK administration. Once again the course was up and running in less than a year. Initially OLIHK bought assessment material from the OU. The human resource required to set up and run *M101* were similar to the OC. Incidentally the pass rates for *M101* are similar in the OU and OLIHK (Reid 1992).

Institution as tutor: National Distance Education Council (NDEC), Eire
The OU has had a number of institution as tutor agreements, some of which have included translation of course materials into other languages. However this was not necessary for the collaboration in Eire. The student materials were identical to those used by the OU in the UK but tutors were appointed in Eire by NDCE instead of the OU (OU 1989). The set up time for *M101* was about six months. Apart from core administration and tutor management, minimal human resources were required to set up or run the course. This small investment was fortunate as the arrangement only ran for a few years before the OU itself decided to operate directly within the whole of Europe rather than just the UK (spurred on by the single market European legislation).

Collaboration with Validation: Open University Degree Programme (OUDP), Singapore
In 1992 the Singapore Government decided upon collaboration with the OU in which they would run OU courses like *M101* for degree programmes, tailored to suit the needs of Singapore, but validated by the OU. This low risk strategy still left the flexibility to design their own degree programme and, if successful, at a later stage to add other courses, some perhaps written locally, when expertise in distance learning increases. They can modify programmes in any way acceptable to the OU, as validating body: the same freedom as UK institutions, validated by the OU.

The Singapore Institute of Management (SIM) was chosen to run the OUDP programme (OU 1993), which includes *M101*. Consultant advisers from the OU and from the National University of Singapore (NUS) worked alongside two SIM administrators (Mr C.T.Seah and Ms H.L.Sia) in the setting up the programme over about 15 months. The Maths advisers (the author from the OU and Dr Y.K.Leong from NUS) set up *M101*, with help from the OU Chair of *M101* (Dr R.B.Coates). OUDP has no full time academic staff. All the course materials will be virtually the same as those used in the OU. Dr Leong will oversee the monitoring and management of tutors, with some training and monitoring visits from OU academics. Human resources of about 0.25 academic and 0.5 administrative person years (excluding core activities) can be attributed to the set up of *M101*. Running *M101* will require only the fixed human resource costs for core administration, tutor management and monitoring.

Comparison of the models

The case study adds quantitative and qualitative information which are summarised in tables 2 and 3, which give the *variable* human resource costs, over and above core administration, tutor management and monitoring and figures 1 to 5, which illustrate the time frame for the set up and running of *M101* under the different models.

MODEL	Case study example	set up costs (person years)	set up time (years)	presentation running cost (person years)
Develop in house	OU,UK	20	3	1
Purchase teaching materials	NIC & OUC Canada	2	1 to 2	1
Whole course user	OC, Macau & OLI HK	1	0.75	0.25
Institution as tutor	NDEC Eire	0.25	0.5	0
Collaboration with Validation	OUDP Singapore	0.5	1.25	0

Table 2 Quantitative comparison of the models in terms of their *variable* human resource costs (over and above core administration, tutor monitoring and management) in the case study.

MODEL	Case study example	Maths Expertise	Producing DE material Expertise	Producing assessment material Expertise
Develop in house	OU,UK	GREAT	GREAT	GREAT
Purchase teaching materials	NIC & OUC, Canada	MEDIUM	NONE	MEDIUM
Whole course user	OC Macau & OLI HK	MEDIUM	NONE	MEDIUM
Institution as tutor	NDCE Eire	NONE	NONE	NONE
Collaboration with Validation	OUDP Singapore	SOME	NONE	NONE

Table 3 Qualitative comparison, from the case study, of the models in terms of human resource expertise, over and above core administration, tutor monitoring and management.

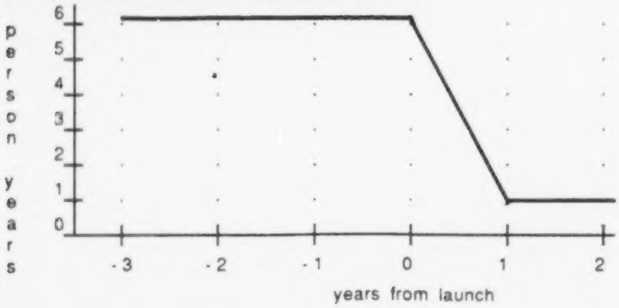

Figure 1 Developing *M101* in house.

CONCLUSION

Extrapolating from the production of *M101*, in addition to core administration, tutor monitoring and management, a full degree programme, would take of the order of 120 person years to setting up and six people (three academic and three administrative) to run the programme every year. Expertise in the subject, in the media used and in writing distance learning and assessment materials are required. However by comparison, purchasing course materials *off the shelf* from another institution is much less costly in human resource terms. In the institution as tutor model, little human resource or expertise is required beyond the core administration and tutor management required for any distance education institution. Less up front investment is required if courses are purchased and the lead in time is shorter. There is less risk and so these models may be more attractive, on human resource grounds, to new institutions than developing their own courses in house.

In addition to the course materials and assessment, the originating institution may be able to provide academic and administrative assistance with setting up core administration and tutor management. The OU has done a considerable amount of this in the above examples and is currently producing additional written materials on the latter aspect specifically for *M101* (Neumann 1993).

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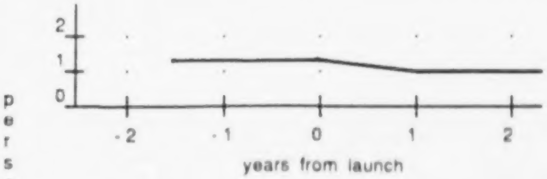

Figure 2 Purchasing and integrating M101 teaching materials

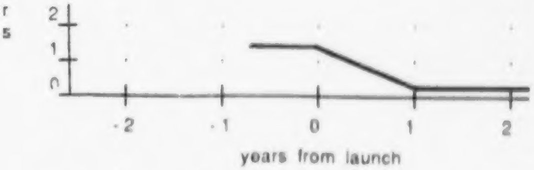

Figure 3 Using *M101* as a whole course.

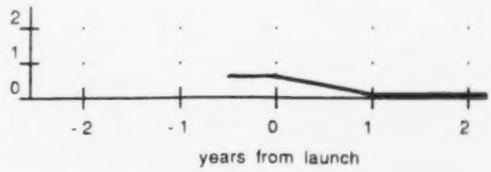

Figure 4 Using *M101* in an institution as tutor mode.

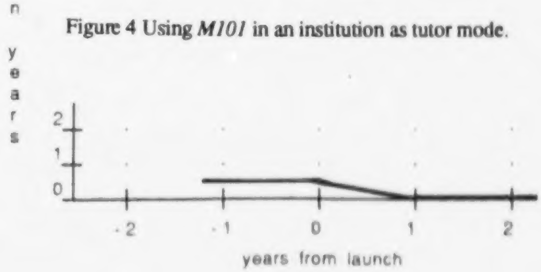

Figure 5 Using *M101* in collaboration with validation mode.

REFERENCES

Neumann, S. (1993) *A foundation course in mathematics for independent learners* OU.
North Island College Vancouver (1980) "Student Manual Calculus I " *MAT 181*
North Island College Vancouver (1981) "Student Manual Calculus II " *MAT 182*
Open University (1978) "Mathematics Foundation Course" *M101*
Open University Consortium Vancouver (1984) "Introduction to Calculus I" *MATH 110*
Open University Consortium Vancouver (1985) "Introduction to Calculus II" *MATH 111*
Open University (1989) Academic Board paper AcB/38/24 & AcB/38/M para.39
Open University (1993) Academic Board paper AcB/59/16
Reid, C.N. (1992) "Shared courses: a case study of performance" ICDE conference Bangkok
Yuen,K.S., Dhanarajan,G,.Hodgin,T.E.,Timmers,S. (1990) "The use of media in the delivery of distance education courses in Hong Kong " *Interactive Communication in distance Education* AAOU Jakarta

To Develop or Adapt — that is the Question: the Economics of Developing Courses at the University of the South Pacific

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ABSTRACT

The University of the South Pacific (USP) provides courses in all disciplines, catering to a diverse population in its 12 member countries, from mid-high school level (Preliminary) to final year degree (300) level. This is seen as meeting the needs of a region that has large gaps in the formal education of not only its current workforce, but also the general public. For the first and second semester and the 30-week semester this year (1993), some 140 courses will have been prepared for the offer. With the establishment of the Commonwealth of Learning there is the possibility of obtaining "ready-made" courses and this could be easier and less costly than before - but just how much less costly is it? Can we confine ourselves to talking in terms of money only? Or are there other costs that must be considered as well? Do we consider the customer only? Which customer - the student or the government owner?

This paper examines the issues of costs and benefits related to the design and development of courses at the USP and the subsequent range and type of courses available.

INTRODUCTION

In the 20 years of its existence, the USP distance education programme - known as `Extension Studies' - has, for the South Pacific, opened up study opportunities to a large number of people who would not otherwise have had such access. Indeed, it has often been said that Extension Studies has taken the university to the village, and has given regionalism to the institution. The success of this programme has been seen both within and outside of the institution. For instance, new initiatives in many areas of study for example, Marine Studies, Law, Librarianship, and Early Childhood Education (ECE), have commenced on demand from member countries as a result of very sucessful lower level programmes (e.g. the Librarianship Diploma out of the Librarianship Certificate, the ECE Diploma out of the non-credit Preschool Teachers Certificate, and the Law degree out of the Legal Studies Certificate and Diploma). As a consequence, University Extension, the USP section responsible for distance education, has also expanded substantially. Simultaneously, member countries have seen an increase in human resources with formal learning behind them - in all the original eleven countries, there has been a marked increase in the number of USP graduates, diplomates and certificate holders with many in the latter two groups achieving their qualification through the distance mode. There is no doubt that as a dual mode university, the USP has made its mark in the region and given a distinct stamp on the development of human resources. This success however, has come with its price, and the sudden boom in the demand for programmes and courses by extension has raised many issues of concern in course development and production, course delivery, materials distribution, course maintenance and student support, the communication, and the administration necessary. All these concerns must be addressed thoroughly and satisfactorily. For instance, in course development, there is a concern that the workload of course development staff and timely materials production could/has seriously affected the quality of the product (Renwick et al, 1991); in student support, there is a concern that the costs and efficiency of delivery might reduce the offering of tutorials and so reduce personalising the courses through face-to-face tutorials. This paper explores the issues in course development and in particular, recent thinking to purchase courses, as an option to the development of courses "from scratch", in light of economical considerations of the university given its particular context.

THE CONTEXT

The USP extension (distance education) student could be from one of its twelve member countries or another country but residing in the USP region, or from the region and residing outside, or someone interested enough to enrol from outside. Consequently, USP extension study materials (presented in English), are written with this cultural diversity in mind and for students using English as a second or third or fourth language! Because of the particular USP context (average home environment without modern amenities, climatic problems, transport difficulties), course materials are primarily print-based although some courses have audio and video tapes as integral components. Whatever the components, the course materials are developed on the basis of : information about student learning revealed by research, albeit it is research mostly from outside the region, and the development philosophy of USP as reaffirmed by the Distance Education Committee (DEC) in 1993, which states:

> that a student studying through the distance mode shall normally be provided with teaching/learning packages which, in themselves, have been designed to enable him/her to succeed in the mastery and passing of the course. These packages shall, to the fullest extent, comprise instructional strategies and media appropriate both to the known student market and the general `standalone' policy.
>
> DEC paper to Senate, March 1993

The design, development and production of the USP study materials is carried out by the Distance Education Unit (DEU) of University Extension. Out of the recent Commonwealth of

Learning Review of distance education at USP, the COL team reported that "there has been an apparent deterioration in the standard of preparation for printed materials" (Renwick et al,1991,p.45). Consequently, University Extension resolved to improve the quality of their study materials and consciously focussed on the design, editing, and production that is involved. In the absence of research into specific USP considerations, what has been found useful elsewhere has been accepted for use in the case for USP extension students. But we have to acknowledge that research in the developed world has often accounted for the white male experience and attitude and this may be counterproductive for the Pacific student whose values and perspectives "are generally traditional and non-western" (Thaman 1992, p.7). For instance, certain cartoons may offend rather that lighten a particular dense piece of writing, and Pacific students may not interact positively with such examples. Thus one should be cautious and sensitive when attempting to use cartoons to improve learning experience in USP study materials.

Our study materials therefore continue to be developed with the basis of findings elsewhere but there are emerging questions on their value. Given that USP students usually take courses for the purpose of accreditation, it seems that they would prefer that the study materials are structured and organised for them, rather than an open style for students to control their own learning. I believe our students expect study materials that direct them in their learning as efficiently as possible. This is in line with their earlier learning experiences and their cultures which have the teacher as the authority on learning. The learning materials must therefore have effective interactive learning opportunities that will ensure that students absorb and assimilate the subject matter without unnecessary expenditure of time - and currently, this is highly desirable from the student's perspective.

To Develop or Adapt

The question "To develop or adapt ?" posed in the title needs careful consideration and I would like to focus on the following issues:

- who do we consider - the institution, the staff, the students or member governments?
- what must we consider - academic standards and integrity (i.e. course suitability to USP standards and established criteria), relevancy to student needs, their capability and satisfaction, or the needs of the island states expressed in their manpower plans?

In his paper Higher Education in the South Pacific, Mr Geoffrey Caston (1992), former Vice Chancellor of the USP, said "From a strictly economic point of view therefore, the best way forward must be to try and get better value for the present investment by rationalizing tertiary education along lines that will secure economies of scale and improvements in quality." (p.5). He was referring of course, to the university as "the investment" but he could almost have been talking about the course development situation in Extension Studies. In the same paper, Caston says " ... the way forward is to develop still further the university's remarkable distance education and extension activity." (p.8). This is fine but I believe that the question of economics should be considered in in light of the different perspectives of those interacting during the development of any course and those who would interact with the developed course/programme. Further, it is my belief that any consideration of distance education and economics must relate to perceptions of what is quality and points to a goal one must aim for in distance courses and programmes.

In my view, there are at least four groups of people whose perspectives need to be taken into account during course development: the students, the course writers/tutors, the instructional designers/editors, and the administrators. The interests of these groups will most certainly have them leaning towards differing viewpoints. For instance, the usual reason students are interested in a course is for accreditation; course writers write/teach as a matter of duty and they must be sure that content is academically appropriate; instructional designers and editors focus on presenting the content in the way they believe is the most effective for learning, and administrators are concerned with cost-effective measures and timely delivery to consumers. Thus students will appreciate courses that they can work through smoothly and complete successfully; writers often tend to write more for colleagues in their endeavour to ensure that the content is "right"; designers and editors frequently make changes so that the teaching/learning aspects of the study materials are pedagogically sound; and administrators push for completion of development and keeping costs confined to the existing parameters of the programme funding.

The differing perceptions of such groups are discussed by McIlroy & Walker (1992) in their paper "The qualities of distance". From their study of these groups, the authors emerged with major quality themes: course structure, course administration, institutional and environmental influences, relationships, standards and evaluation.

Given its context and meagre resources, I believe that our university needs to look at the economics of course development and options that could improve both the quality of courses and efficiency of the development. In my view, such economic issues are:

- *what resources should be put into course development?*
- *what justifies the extent to which a course is developed and perfected?*
- *how long can resources be allowed to be expended for the development of a course?*
- *what makes a course satisfactory?*
- *for whom should it be satisfactory - the producers (institution) or the consumers(students/governments)?*
- *is purchasing a course available elsewhere a viable option or would this incur more rather than less problems?*

At the USP, the development period for a new or revised course is twelve months, but developing courses (writing, instructional design, editing, and production) has taken a wide range of timeframes and resources, both human and physical, as can be seen in the following examples:

1. Course A (3rd yr, new) - involved a team of at least 10 staff (coordinator, 4 writers, 3 instructional designers, editor, textprocessor). Development commenced in 1988 but it is still incomplete, having been deferred from offer every semester since 1989. The reason for deferral? Writing staff unable to deliver.
2. Course B (pre-degree, revised) - involved a team of 9 (5 writers, instructional designer, editor, Textprocessor and Course Devlopment Assistant). Has taken two years to complete.
3. Course C (pre-degree, revision) - involved a team of 5 (writer, instructional designer, editor, course development assistant, textprocessor) and has also taken two years to complete.
4. Course D (1st yr, new) involved a team of 9, has taken 2 years so far, will not be ready until 1994.
5. Course E (1st yr, revised) had/has team of 8 (4 writers, and 4 Extension staff). Revision has taken two years now, still will not be ready for 1994.

These examples illustrate some of the worst scenarios that have been seen at this university in the last five years although many other courses have been developed within the normal 12 months time frame allowed. It would probably make an economist shudder at such seemingly unmanaged expending of resources - it has certainly caused USP Extension administrators much concern.

To date, USP extension courses almost without exception, have been developed at the university, and writing staff are expected to fit their writing into a schedule that includes teaching, marking, research, publishing, and giving seminars or attending conferences. A similar expectation is placed on the academic Extension staff (instructional designers and editors). This is based on the belief that the most suitable course materials are best produced by those who are familiar with the university context and its clientele. Indeed, it is commonly understood that teaching departments seeking to second staff from outside to assist with their workload, should allocate such short-term staff to the on-campus teaching while longer serving staff are "freed" to write extension courses.

I believe that the university could benefit by investigating more closely, of buying then adapting already existing materials so that, as some have argued, we do not re-invent the wheel. But there are constraints that need to be addressed carefully as illustrated by the following example of an adapted course.

> Course P (1st year, new, on computing)- this course is tied to many commercially produced components that include textbooks and videotapes. Efforts to gain permission to reproduce the tapes were unsuccessful and using the tapes is proving very costly, given that each of the 10 Centres would need a set of tapes. However, adapting the course needed the development of two short booklets to accompany the existing study materials and this was completed in the normal timeframe.

It must be noted that for this course, the content is universal by nature, yet it could not be offered without some adaptating. However, adapting involved only four staff (one teaching and three from course development) over one development/production period. It would seem therefore, that for these kinds of courses, it may be more economical to purchase and adapt.

But there are many factors that contribute to successful development: the human resources, the nature of the content of the courses, and the availability/accessibility of the physical resources. Take the human resources. At the USP, there is a high turnover of staff that becomes an adverse factor in course development. For instance, in Course A described earlier, the main drawback was in the human resources: members of the team were/are very senior staff with heavy administrative responsiblities that inevitably pushed writing responsibilities aside; many other team members left the university and their replacements needed orientation before they could be part of the team; and the coordination of the team changed hands many times for these reasons. Thus it has been five years since the development has started, yet the course is far from completion. A similar story can be told for Course D although this has taken a shorter time.

What does this mean in real "costs" ? If we take the four different perspectives referred to earlier, we need to consider what "economic" means to all involved. Let us start with the writers. From their perspective, the teaching staff (who are also our writers) must balance the extension writing with other academic and administrative commitments. They have agendas that include face-to-face on-campus teaching, marking, research, publishing and so on, and attending meetings as members of university committees. Therefore, from their point of view, lengthy course development will cost them precious time they could make use of for other activities. Academic course development staff activities also include research, other academic work, and attending meetings. From the student's perspective, courses need to be manageable (in content and learning opportunities) to achieve a pass, and non-completion of the development means the course is unavailable, therefore a programme cannot be completed - a qualification desperately needed for better job opportunities. Finally, for the administrators, non-completion of development means non-delivery of goods, and a waste of resources.

Purchasing developed courses and adapting them for USP thus seems to be a viable option, given the clients' needs and the institution's constraints. However, the culture/social environment issues must be addressed carefully in the transforming process, if the Pacific students are to be provided with suitable quality learning materials.

Let us look at a course that is developed at the USP. A new or revised course would be one of three courses in the portfolio (workload) of an instructional designer, editor, and course development assistant during the development period; it would be the one course a lecturer is assigned to write, and the materials would be a third of the work completed by a Textprocessor over the same period. Financially, this is about $7,000.00 worth of Extension resources and at least $5,000.00 of writer's cost (one-fifth workload). It is possibly more costly than bringing or licensing courseware and adapting them for USP use, particularly if the COL endeavours are to be used.

At the end of the day, the development of courses must be at a reasonable cost, if the USP distance programme is to be cost-effective. But in doing so, we must ensure we do not sacrifice the quality of our product. Therefore, if we push and rush the development of a course to get it to completion (and so satisfy student and administrator) there may be conflict with the writer, designer and editor. It is here that I feel that adapting an already existing course would be a desirable cost-effective measure and the time and effort for the necessary input for "conversion" to produce a "Pacificised" version ought not to be as great as doing it "from scratch".

The main arguments against this move are that courses from outside the region will not be inappropriate culturally and "environmentally" and the actual cost in terms of real money to buy such courses could be limiting. For instance, the cost of purchasing a course package from the Open College Network in Australia is A$240.00 compared to the USP cost of FD$60.00 per set to buyers from outside the region. But this may be the way to alleviate the situation caused by several staff-related problems: e.g. frozen staffing establishments and the very high academic staff turnover (".... 60% of staff have held their posts for less than two years." Matthewson (1991) p.10.). Such problems have often led to non-completion of course development, such as one we have just cancelled, a third year degree course necessary for the completion of a programme, and which had been prioritised for development as students have been waiting for it in order to complete their Diploma. The reason it has not been developed is the usual story: staff allocated to the writing had/have a demanding workload and meetings to commence the development did not progress beyond initial meetings. Now the three staff involved are leaving the university at the end of the year and once again students have been deprived.

Perhaps if such a course had been developed elsewhere, existing course materials could have been adapted within the timeframe and the work be less daunting. It may be argued that this is speculation. Nevertheless, I contend that it is easier to make changes to something already there, than it is to create out of nothing. And the university clients will be satisfied.

CONCLUDING REMARKS

It seems to me that in the desire to develop courses that are academically and instructionally satisfactory, the client (student) needs ought to be taken into consideration more and the resources expended as efficiently as possible. The particular USP context of a multicultural, multinational student body in the distance education programme requires course materials that must meet a diverse range of learning styles. The varying educational needs of twelve very different developing Pacific nations inevitably place seemingly impossible demands on USP's Extension programme for the timely delivery of quality course materials. It would be useful therefore, to seek alternatives to developing study materials totally from the start at the university, particularly courses that are universal by nature, and capitalise on the resources at institutions such as the Commonwealth of Learning. I firmly believe that it would be more economical to adapt existing courses which have universal content, than to develop completely at USP.

REFERENCES

Caston, Geoffrey (1992) '*Higher Education in the South Pacific*'. The Third Annual Bank of Hawaii Pacific Islands Studies Distinguished Lecturer Honolulu, November 1992.

Lockwood, F.G., Williams, A.I., & Roberts, D.W. (1988) 'Improving Teaching at a Distance within the University of the South Pacific', *International Journal Educational of Development*, Vol 8, No.3, 265-270.

Matthewson, Claire C (1992) 'Whose Development, Whose Needs? Distance Education Practice and Politics in the South Pacific', Paper presented to the ICDE 16th World Conference, Bangkok.

Matthewson, Claire C (1992) 'Towards quality and equality : distance education developments in the Asia/Pacific region', Paper presented at the Distance Education Association of New Zealand (DEANZ) Conference, Dunedin.

Matthewson, Claire C (1992) 'Distance Education in the South Pacific', Paper prepared for the NIME/UNESCO Survey of Distance Education in the Asia/Pacific Region.

McIlroy, A. & Walker, R. (1992). 'The Qualities of Distance', *Australian Campus Review Weekly*, Dec 10-16, 12-13.

Renwick, W.L., King, St C. & Shale, D.G. (1991) *Distance Education at the University of the South Pacific*, Commonwealth of Learning, Vancouver.

Thaman, K. H. (1992) 'Becoming more aware of the Link between Cultural Values and Education', USP Centre for Enhancement of Learning and Teaching Seminar. Unpublished paper. USP, Suva.

USP Course Development Unit (1990) *Distance Learning Materials at the USP : A Guide for Course Writers*. Extension Services, USP, Suva.

Va'a, R. (1993) 'Improving the distance learning experience of students through quality interaction: the case of the USP study materials', Unpublished Paper for the Postgraduate Diploma programme at Deakin University.

The Importation and Adaptation of Distance Education Courses: is it an Expensive Option?

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ABSTRACT

The importation of courses from other institutions is often seen as an expensive option for distance education institutions. This paper shows that for OLIHK the decision to use OUUK courses in science and technology has led to costs comparative to those for internally prepared courses.

INTRODUCTION

The Open Learning Institute of Hong Kong (OLIHK) was established by Government to provide degree-level study through distance education. Programmes are run by the Schools of Arts and Social Sciences (ASS), Business and Administration (B&A), and Science and Technology (S&T). Government now requires that all costs are met from student fees. Therefore, Schools are expected to develop and run programmes within restricted budgets.

One principle proposed by planners was that where a suitable course existed at another institution, it should be purchased rather than arranging for such a course to be written by OLIHK. S&T has adopted this concept as the British Open University (OUUK) has a large number of courses in computing, engineering, mathematics and science suitable for S&T's programmes. B&A found that this model for courses was not appropriate in a discipline so culturally sensitive and it has therefore had to arrange for local courses to be written. ASS developed its first programme using OUUK courses, but it has now moved towards presenting a greater proportion of locally produced courses.

Whilst the S&T decision is recognised as an academically appropriate one there has been criticism that imported courses are expensive when compared to internally produced ones. This paper briefly reviews the financial performance of S&T courses in an attempt to show that whilst initial and presentation costs may be proportionally higher, within OLIHK these courses are no more expensive to run than those prepared by OLIHK itself.

The School of Science and Technology

(Robertshaw, 1992) describes the development of S&T's programmes and discusses the advantages and disadvantages of using OUUK courses. This policy will enable S&T's 17 academics to introduce 39 courses by 1994. An important factor has been that the academics can be fully committed to course presentation - to have also undertaken course development would have required substantial increases in staffing. OUUK courses are professionally and internationally recognised and have been prepared to inter-link economically. They are well tested and of proven high quality in terms of content and teaching. On the negative side some adaptation is still required, the complexity of the language used can trouble OLIHK students, S&T degree planning has to a major extent been limited by what courses are available from OUUK, and the School is perceived by some as little more than an extension of OUUK.

When S&T purchases a course it buys more than just the material. It obtains the rights to produce the material and to broadcast TV programmes, videos for the OLIHK library, any specially prepared software, access to OUUK academics, and the use of past assessment. Purchasing is not always quite as smooth as S&T would wish. An OUUK course is not packaged for sale in its entirety and this inevitably involves the OLIHK in additional expense, eg. to clear copyright on TV programmes. Courses are designed around the OUUK student support services, eg. computing and laboratory support, and this requires particular attention from S&T - again at a cost. OUUK demands a high return for the use of its courses, which have been very expensive to produce. These costs are substantial for a relatively small institution dependent entirely on student fees.

What's 'expensive'?

Concern about the costs of S&T courses is based on the high initial costs and the print license; however, these do not provide a fair measure. In course production there are many hidden costs and benefits and it should be the total costs and gains that are considered. It is inappropriate to compare one course against another as variations in costs can be considerable. In this paper it will be the costs of the complete set of a School's courses that will be discussed.

Internally produced courses can seem to be cheap; however, when using an internal writer his/her salary must form part of the production costs. Similarly other hidden costs must be taken into account, eg. the time required by the educational technology unit. Any costs for revising the course following the first presentation must be included. There is also the question of how successful a course is in terms of student survival. A cheap course may prove to be a financial burden if student drop out and failure rates are high.

'Expensive' is relative. Any comparison should be between imported and locally produced courses within a School, but the latter do not exist within S&T. This paper contrasts S&T

costs with those from B&A, whose courses are prepared locally. This has to be interpreted with caution as the subject disciplines are fundamentally different and it is not shown here that the comparison is being made on an equal basis. Similarly the student bodies cannot be assumed to have identical characteristics. Motivation and educational backgrounds may well differ. Despite these points it is felt that the comparison does provide useful information.

	Tutor	Material	CDR	Acad.	Total
B&A					
91/92	24	6	1	15	52
92/93	22	6	5	19	61
93/94	19	7	5	21	61
S&T					
91/92	18	17	0	13	54
92/93	16	11	0	14	53
93/94	15	13	0	19	60

Table 1 - Comparing direct costs for two Schools

Table 1 shows a breakdown of the direct costs of presenting courses, as percentages of income, from both Schools over three years. The material costs for imported courses are twice as expensive. Whilst these include all production and capital costs for the imported courses, they do not include the costs of course development for B&A. These are covered by a pay-back system to a Course Development Reserve (CDR) of 10% of income from courses developed using CDR funds. Such costs, averaged over all courses, are given in the CDR column. Combining material and CDR costs produces a different picture, although it should be noted that CDR payments for large population courses, as is the case for many B&A courses, is likely to inflict an overpayment after 3-4 years.

Face-to-face provision and assignment marking by tutors is more costly in B&A. The amount of tutor support is partially related to the amount and quality of support to the learner provided by the course material; however, no research has yet been undertaken as to how this features in OLIHK courses. OUUK courses do provide a lot of support to the learner both in their instructional design and in their use of multi-media - the latter does not feature in B&A courses.

The cost of academics who support the courses is included as an indication of the extra staff costs required by B&A for course development and revision. The convergence of this cost for both Schools is due to the greater use of external writers by B&A and the need to provide coverage for the five S&T disciplines. One problem for S&T is staffing 'minority' interest areas, eg. engineering mechanics; providing cover for relatively small courses makes overall academic costs higher. Also the large student numbers on B&A courses (mean 443 in 92/93) compared to S&T (321) helps to spread its academic costs.

The total direct costs of the two Schools indicate that imported courses are no more expensive than those produced internally. S&T costs also include the provision of access to external laboratories for which there is no equivalent cost for B&A. Furthermore B&A courses are written around texts, which students have to purchase themselves. This adds about 2.5% to the cost of a course to the student - a hidden 'cost' which the majority of S&T courses do not have.

TV broadcasts do not figure in Table 1. Many of S&T's courses contain programmes, which are broadcast by one of the TV channels. This is sponsored by a local company and so the costs do not appear against the School's budget, where they would add an additional 6% to costs. The benefits of broadcasts are debatable with low viewing rates. Video copies are provided in OLIHK's library, but the dropping of broadcasts for financial reasons would still require the expansion of internal viewing facilities.

	91/92	92/93	93/94
M101	12	8	8
S102	17	9	8
M205	19	10	7
M261	25	8	10
TM222	29	13	14

Table 2 - Course material costs over 3 years

Table 2 gives the material costs for five S&T courses over three years and shows the effect of initial capital expenditure. S&T can expect a drop of 10-15% in these costs over the first three years of a course. This has not yet led to equivalent drops in its total direct costs as the number of new courses being introduced each year is expanding.

An important factor in OLIHK's future financing is the proportion of students who 'survive' their courses so that higher level courses will have sufficient numbers to justify their presentation. Comparison across Schools is again dangerous because of the differences highlighted earlier, but again the statistics do provide an interesting comparison between the two types of courses. Since 1989 B&A courses have averaged a pass rate of 46% compared to 65% for S&T. The difference in new student enrolment is significant with registrations on B&A foundation courses currently averaging 2800 per year whilst S&T's average is 900. Whilst these figures are not headcounts it is reasonable to expect this difference to be reflected in the income for each School; however, survival rates play a major role and the percentages of OLIHK's income are currently 41% for B&A and 37% for S&T. Survival rates are having a strong effect on the finances of the Schools and the author believes that this rate is strongly affected by the quality of the courses themselves.

Concluding remarks

It is important to repeat the caution that the comparison between the two Schools is not necessarily a fair one as no attempt has been made to demonstrate that it has been made on equal terms. In terms of institutional finance differences between discipline areas are of little concern when considering the bottom line of a budget. This paper has demonstrated that imported courses do not result in higher costs overall. The use of well-tested and carefully prepared courses in S&T has enabled programme development at a total cost which is certainly no greater than that of another School required to develop most of its courses locally.

REFERENCE

Robertshaw, M. (1992) "Developing science and technology degree programmes based on imported courses", *Proceedings of the ICDE World conference*, Bangkok, November 1992

Economics of Distance Education in India

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ABSTRACT

This paper seeks to examine the economic aspects of distance learning system (DLS) vis-a vis Conventional System (CS); and in doing so, it compares both the systems in terms of financial dependence on government, pattern of utilization of funds, per student costs and sources of its variation, and students' performance. It shows that courses offered through DLS, unlike CS, are largely self financed and low cost but less effective from the view point of students' learning attainment. The findings suggest *inter alia* that (i) the surplus funds generated by most distance learning institutions should be ploughed back for reinvestment for enrichment of their schemes; (ii) fees should be levied in relation to costs of education rather than using this instrument for further subsidization of CS; (iii) wastage rate is unduly high which ought to be minimised by improving quality and relevance of DLS schemes; and (iv) there is urgent need to ensure a greater degree of networking and coordination of activities among more than 40 institution so as to avoid overlap and duplication of programme, to overcome the problem of low quality and to effectively ensure economics of scale.

INTRODUCTION

Since in 1962 when the programmes of distance education (DE) were launched in India, this genre of teaching-learning process has made considerable progress. As is well-known, distance learning system (DLS), has been promoted to mainly help to those who are unable to participate in the conventional system (CS) but have the aptitude and the motivation to augment their knowledge and enhance their professional competence. DLS has contributed in no small measure, in India and elsewhere, by helping people in acquiring higher qualifications comparable to the degrees of those who could go for studies to regular schools, colleges and universities.

At this point of time when the Central and State governments are caught in a fix between an acute shortage of resources on the one hand and the pressure for providing ever increasing opportunities for education, on the other, DLS can provide a via media for extending higher education at reasonable cost to the vast number of aspirants spread all over the country. However, before plunging headlong into the expansion of DLS already being offered by more than 40 regular universities, it is necessary to asses the cost-effectiveness and the general efficacy of this mode of education, to remove short-comings and effect improvements. In this paper, the cost-effectiveness of programmes of higher education has been compared in respect of both duel mode institutions which are offering the conventional as well as correspondence courses and automomous open Universities (OUS);

The total enrolment in higher education is of the order of over 4 million students which constitute about 6% of the age specific population. Distance learning institutions presently enrol about 11.5 per cent of the total enrolment in higher education. Of this 11.5 per cent, a mere one fifth is accounted for by the five Open Universities. As compared to most countries with which India has to compete, the ratio of educated and skilled labour to the total labour force is abysmally low; more than 60 per cent of the workers are totally illiterate and the proportion of manpower having graduate and higher qualification or having any training in scientific and technical disciplines is not even half per cent. Undoubtedly, such a low level of general awareness and paucity of technological inputs in the productive sectors of economy have resulted in low productivity and sub-optimal return on investments.

The present situation calls urgently for expediting the spread of development oriented higher education. Any attempt to rectify this situation and spreading education among those who already are or would be entering the workforce at the shop floor level gets frustrated because of insurmountable difficulties arising mainly form grossly inadequate funding of education, about 4% of GNP.

The CS cannot respond quickly enough to the needs of the rapidly changing production processes or to the imperative of equitably providing low cost, efficient and relevant educational programmes, particularly for upgrading knowledge and skills at the learner's convenience. An alternative or, in some sense, a parallel system to the conventional modes has come up in response to this situation. DLS in which till date, the correspondence system shoulders most of the burden, has acquired credibility all over the world, as an equitable, cost effective, and flexible alternative for meeting the requirements of all categories of learners irrespective of their location. Its relatively informal character also makes it particularly suitable as a vehicle of continuing education at very little cost to government. Several universities offer a variety of courses at different levels only because of these conveniences.

COST EFFECTIVENESS : A COMPARISON OF CS AND DLS

It seems desirable to begin an analysis of costs by recounting the sources and methods of financing programmes of DLS. Most universities offer degree/diploma courses through correspondence as a part of their expansion programme; and therefore, funds are allocated for these courses in the way resources are allocated for other constituent departments. While the funding arrangements are identical there is a marked difference between the two systems in their dependence on the Government.

Financial Dependence An analysis of relevant data for 1980-81 revealed that while DE programmes were funded by the government only to the extent of 18 per cent, expenditure on CS had to be supported by the government to the tune of 72 per cent. While 73 per cent of the requirements for DE programmes were met from tuition and other fees, the corresponding receipts under the CS was only 13 per cent (Ansari, 1992: Ch.5). Recent data on the pattern of funding in the two systems, drawn from a sample of 8 universities, also confirms these observations. Analysis of data shows that in 1988-89 DE programmes of these universities as a group were financed largely through collection of fees (63.3 per cent) whereas the corresponding share of fees in CS was 16.4 per cent. The share of tuition fees, for the sample, was 48.5 per cent and 3.9 per cent, respectively. Taken as a whole, government had to support CS with 62.1 per cent of their expenditure as against only 8 per cent support being provided by the government, the balance being met by the beneficiaries of DE schemes (Ansari, 1993 a: T.1). In effect, thus, although there are considerable variations in the financial dependence of universities on the government for different reasons, comparisons of the extent of dependence of CS and DLS on government and non-government sources clearly indicate that DE is largely self-financing (92%) whereas CS is heavily subsidized by the government (Ansari, 1993: Ch.3).

Utilization of funds An analysis of the composition of expenditure for a cross-section of universities demonstrate the following. Though there are wide variations between different institutions, as a whole, the evidence establishes conclusively that, in DLS payment of salaries to teaching and non-teaching staff accounts for the bulk of expenditure in most institution, though in some, the proportion is very much lower than in others. In any case, everywhere it is much less than the proportion spent on this item in CS. Some of the departments of DE contribute very substantially to parent universities. Over and above these contributions, large sums are being put away by way of loans and investments. These account for 56.8 per cent in Annamalai, in Madras 30.4 per cent and in Mysore 27.3 per cent for the year 1988-89. This indicates that DLS is capable of generating considerable surpluses. These observation corroborate the findings of earlier studies on the subject (Ansari, 1992; Ch. 5). It, however, merges that inter-institutional differences in relative share. of different items in the overall expenditure are too wide to permit valid generalizations about the pattern of expenditure incurred on different heads. In the circumstances, the relevant financial issues can be studied only in terms of unit costs.

Per Student Costs The analysis of unit costs (per student) demonstrate that cost differences between CS and DLS are very wide indeed. Per student costs in DLS have generally emerged in the range of 15 to 23 per cent of the cost per student under CS for Annamalai and very surprisingly, it is no more than 1 to 2 percent for the Kerala University (Ansari, 1993a T3) In general, per student costs of DE are about 10 per cent or less as comparable to CS. These results for 1988-89 confirm the expectation on *a priori* grounds and are very close to the cost ratio of 15 per cent worked out on the basis of data for 1980-81 for a larger sample of universities (Ansari, 1992: Ch 6). The corresponding costs per student for OUs in comparison in CUs have emerged about 30 per cent for comparable programme (Table 1).

The variations in the per student costs of education can be attributed to a number of factors. Some may be ascribed to differences in the scales of pay of teaching and non-teaching staff in different states; the levels of enrolment; the extent of revision in curricula; the types of media, other than correspondence used in imparting knowledge; the extent of the shift of cost burden to other institutions whose staff assist in course writing; the lack of scientific norms of expenditure on different items, etc. Since most of the institutions differ considerably in their academic programmes, administrative structures and financial aspects, no attempt has been made in this paper to isolate the factors and to quantify the extent to which these are responsible for variations in costs.

Student's Performance Are the educational outcomes, as assessed in terms of student' leaning,comparable for both the systems? The examination results for the year 1988-89 for the universities of Delhi, Annamalai and Bombay were compared. Since these universities offer various programmes at all levels under both the systems, comparisons of student's performance should give a useful indication of the degree of efficiency in the delivery of educational services. On the assumption that the academic background, the group characteristics of the student population, the instruments of testing, and other external factors affecting students' learning are common in the two systems, the following major conclusions emerge. First, the overall performance of students in DLS as compared to CS is very low. For instance, as against the total pass-out rate of 54.6% 88.7% and 69.4%, respectively, for the Universities of Delhi, Annamalai and Bombay in CS, corresponding rates for DE emerged 28.2% 40.4% and 41.2%. In effect, thus, the difference is 26.4, 48.3 and 28.2 percentage points, respectively, for the above universities; which reveal substantial wastages in DE system. These evidences corroborate the earlier findings (Ansari 1992, Ch. 6). Second, women candidates have generally performed better than males under both the systems. The male-female difference in performance is more pronounced in CS (15.7 percentage points) as compared to DE (5.3 percentage points). Third, there are glaring differences in the combined scores of students with first and second division marks in the two systems. Whereas the pass percentage for men and women with second division and above were 15.7 and 28.8 per cent, respectively, in CS, the corresponding figures for DE were only 2.1 and 3.9 per cent. If examination performance is taken as an index of standard, the evidence indicates that the wastage rate is higher in DE. Such a poor performance point to a very important area of qualitative failure which constitutes a major drag on the pursuit of 'excellence' in higher education. The situation obviously requires a systematic investigation into the causes of such wide variations in the overall and relative performance in different courses, particularly in DE in comparison to CS.

A discussion of the issue arising out of the evidence regarding differences in performance would be beyond the scope of this persentation. Nonetheless, it can be stated *en passant* that the relatively poor performance of DLS is attributable, *inter alia*, to the low academic profile of students who participate in DE (Ansari, 1992). This, however, has to be viewed together with the fact that the flexibility in DLS provides all the scope required to modify and improve the programme without too many structural difficulties. In the light of the above data for the three major universities, there is, *prima facie*, a strong case for expeditiously undertaking an incisive proble into the performance of other institutions which also cater to educational needs through DE. In this context, one can reasonably put forward the hypothesis that the performance of other institutions is unlikely to be no different from the institutions for which data has been collected and analysed. It needs to be stated without prevarication that losing sight of quality and efficiency in any system of education would not serve the ends of either equity or human resource development.

Performance of Open Universities (OUS) All the five OUs together enrol about one-fifth of the total enrolment in DE programmes. OUs enjoy considerable academic, financial and administrative autonomy as compared to the Institutes of DE operating as constituent departments of Conventional Universities (CUs). Table 1, present select indicators of performance on comparative basis for OUs, institutes of DE and CUs. The evidence shows that (i) OUs are largely funded by the government; (ii) the extent of self-generated funds from fees are high for OUs as compared to CUs; (iii) the per student institutional costs are much lower, about one-third, for OUs than CUs; and (iv) students' performance is generally lower for OUs compared to CUs. The results for OUs are thus largely consistent with CUs offering DE programme under the dual mode, as discussed above, and demonstrate that the degree of efficiency of DLS in delivery of educational services, as compared to CS, is lower.

Table 1. : Performance Indicators: Open and Conventional Universities, 1991-92

	Name of the University	Sources of Income (%)		Payment of Salary (%)	Unit costs (Rs.)	Students Performance (%)
		Govt.	Fees			
1	IGNOU	68	32	35	2046	22.5
2	YCMOU	NA	NA	NA	2214	34
3	BRAOU	27	73	32	947	29
4	KOU	48	52	NA	1824	NA
5	Select(8) DE Institutions	8	92	18	600-2300	28-40
6	Conventional Universities	60-95	5-40	65-90	5000-25000	55-60

Source : *Compiled and computed by the Author from different sources.*
IGNOU : *Indira Gandhi National Open University, New Delhi*
YCMOU : *Yashwantrao Chavan Maharashtra Open University, Nasik*
KOU : *Kota Open University, Kota*
BRAOU : *Dr. B R Ambedkar Open University, Hyderabad.*

POLICY IMPLICATIONS

A major challenge which Indian HE confronts today is to provide relevant and quality education at low cost in such a way as to assure equality of opportunity to all those who wish to benefit, and are capable of benefitting, from the network of educational facilities. CS suffer from built-in constraints in coping with the rising social demand for HE, including continuing education as well as meeting the need of deprived sections of society. DE on the other hand, with its low costs and flexibility, has significant potential to ease the CS presure of demand for HE at affordable costs. The following considerations are worth taking into acounts in the formulation of an appropriate policy for the allocation of resources.

Firstly, the communication technology employed in DE provides much greater scope for benefitting from the economies of scale than conventional owing to the nature of cost functions in two systems. While full advantage should be taken of this characteristic, some of the savings resulting from the progressive reduction in marginal costs must be ploughed back into the creation of effective machanisms for systematic and continuous improvemnet of teaching-learning process.

Secondly, DLS, which has emerged not only as a low cost alternative to CS but also as a self-supporting mode, should be extended to meet the pressures of demand for HE The already debilitating 'resource crunch' made much more problematic by fiscal deficits of the order of 6.5 percent of GNP, rules out any sizeable expansion of CS. In fact, the emerging view-point is that 'there is no justification for subsidizing higher education to the extent it is being done today' (Challenge, 1985: 3.4). There is no choice but to find ways for shifting some of the existing and also the imminent burdens of HE to the modes of DE which is better able to accommodate the overall pressure of demand on educational systems.

Thirdly, it is necessary to admit that the much proclaimed capability of DLS to democratize educational opportunities and to provide intrinsically worthwhile education has, as yet, not been firmly established in India. The studies have shown that the beneficiaries of DE, in terms of socio-economic and regional groups are, by and large, comparable with those of CS. In fact, in Indian HE "the problem is not of access and equity but of preventing waste of scarce resources in producing a large number of unemployables" :(Challenge 1985: Para 4.83). Besides attending to equity aspects, steps have to be taken to align DE to the requirements of the job markets. It would be a great pity indeed if this systems too ends up, like the CS, with adding to the gigantic mass of educated unemployables. The fact that per student costs of DE is very low while the students' performance is also very low, by comparision with CS, there is a strong case for using surplus funds, as generated by most distance learning institutions, to enrich the quality of education. An appropriate means of promoting 'excellence' without unduly jeopardizing 'equality' should be evolved. This is imperative if distance learning schemes are to be effective as well as economical and self-financing.

Fourthly, the money paid by highly motivated distance learners, substantial number of whom are from the relatively deprived sections, should not be utilized for any purpose other than providing them progressively better quality of relevant education. It seems highly unequituous and unethical that money collected from them should be diverted to subsidize education of economically better off students in the already subsidised CS. A compilation of facts show that in many cases, the fees charges for DE are much higher than the unit costs incurred on the students. In some institutions, the recurring per student expenditure, net of investments and contribution to the university of affiliation, is much lower than the total fee paid by a student (Ansari, 1993a T 6). This is inequitous.

Fifthly, since the programmes of DE have a wider reach because of the technology employed for imparting knowledge, a greater degree of economy could be effected through networking and coordination of activities among different institutes to avoid overlap and duplication. Also, if the already announced policy of delinking of degrees from jobs is to be effectively implemented, way of curtailing the demand of the non-motivated learners for vocationally irrelevant courses of HE will have to be explored. Keeping in view the overall objective of human resources developnment, the programmes of DLS should be developed with great care such that the mismatch between supply of and demand for educated and trained manpower could be minimised. In this context, CS and DLS should work together to prevent wasteful expenditure and to use the savings for nurturing excellence.

Finally, it may be reiterated that the costs and other financial aspects of DE programmes should be examined in relation to the objectives of specific programmes for human resource development. To make DLS a credible system of education, economic and equality of opportunity considerations alone should not guide the policy of investment in education. An equally important concern, particularly in the regime of on-going libralization of Indian economy must be the provision of a resonably high standard of education and training appropriate to the requirements of a changing society and industrial economy, the environmnet in which most graduates now work or seek employment.

REFERENCES

Ansari, M M (1992) *'Economics of Distance Higher Education'* Concept Publishing Company, New Delhi.

______(1993), *Fiscal Policy for University Development* Concept Publishing Company, New Delhi.

______(1993a) 'The Case for Expansion and Improvement of Correspondence Cources in India *journal of Higher Education*, Vol. 16, No.2, Spring

Challence of Education: A Policy Perspective (1985) Ministry of Human Resource Development. Government of India.

Dhanarajan, G & Hope, A (1992) *'Planning Towards Self- Financing'* Paper presented at the Seminar on Accomodating Social Demand for Higher Education organised by the World Bank and Anna University, Madras, December 1992.

Murby, Stephen (1993) Open Learning in Hong Kong *Industry and Higher Education*, Vol.7, No. 1, March.

Reddy, G Ram (1988) *'Distance Education : What, Why and How?* Studies in Distance Education (Koul. B N etal) AIU

Swamy Kulandai. V.C. (1992) *Accommodating Social Demands for Higher Education Indira Gandhi National Open University. New Delhi.*

Takwale, Ram J (1992) *'On the Sopcio-economic Effectivenss of YCMOU'* Paper presented at the Seminar on Accomodating Social Demands for Higher Education. Organised by the World Bank and Anna University. Madras. December 1992.

Costing of Open and Distance Learning (ODL) — is it Worth it?

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ABSTRACT

In a situation of limited resources, it is important to compare the cost of open and distance learning and face to face tuition. If institutions are to ulse their resources in the mosr effective way possible, they need to know which mode of delivery is the best and when it is appropriate. It is not straightforward to work this out as assigning costs to courses is problematic. In our investigation into the costing of open learning, we attempted to look at the differences between the modes of delivery rather than absolute costs. The cost of producing open learning materials is weighted towards the development rather than the delivery. We took the approach of calculating the break-even point to see when OL was the more financially advantageous mode of delivery, and to see which factors were particularly sensitive.

INTRODUCTION

When I first started working in Open Learning (OL) twelve years ago as a part time tutor for the UK Open University (UKOU), issues such as costs, and efficiency were not even considered. Effectiveness was important. We spent a lot of time debating what sort of support should be given to students to help them overcome the problems of studying at a distance, and we argued vigorously for the resources to be made available when they were needed. Times have changed somewhat since then and costs are paramount. However, even then one of the main arguments used by the UKOU for continuing and even increased funding, was that OU students cost the government less than full-time students. However the benefits of the OU are not solely from producing graduates. There were some problems with that approach, as the proportion of OU students finally graduating was a much lower proportion than for HE in general, but it indicated that although many staff were either unaware or unwilling to consider cost factors, cost effectiveness was a crucial factor in the development of the UKOU.

What is Open Distance Learning

Open and Distance Learning is a phrase with a range of meanings. *Distance Learning* is where the tutor and student are separate, in space and in most cases in time. In order to achieve this, the content of the courses needs to be packaged in some form. How this is done will depend on a number of factors. In most cases, the package is text based, but it can include video, audio tapes and computer assisted learning (CAL). When there is no time difference, simply a physical distance, then IT (Information Technology) systems are the most appropriate.

Open Learning is a much more general term. It is very similar to flexible learning and can apply to a whole range of systems that allow the student choice as to the pace, place and time of learning. It can encompass anything from drop in centres to stand alone multimedia systems to independent study. However, most of them require a package in order to provide the flexibility. Whatever the system, though, it normally offers some support by tutors, tutorials and/or workshops for the student which is extra to the package. This is primarily text, but other media are included, supported.

As a University we are involved in producing both Open and Distance Learning. Although there is a difference, it is very blurred at the edges. The approach to measuring cost effectiveness can be the same for both as it is the balance between support and production which is altered. The results of the analysis can of course be quite different.

WHY WE NEED TO ASSESS COST EFFECTIVENESS

Whichever part of the education and training we work in, resources are limited. The numbers of students attending Higher Education (HE) full time in the UK has increased by approximately 50% since 1980, with the aim of further increasing student numbers, without a commensurate increase in resources. This means we are having to make decisions not only about who gets what, but also about how much. It is crucial that we get maximum benefit or return from the resources we do have so that students get the most benefit and that the unit cost per student is reduced.

What is cost effectiveness?

There are a number of definitions, but a reasonable working definition is that of more output for the same amount of input; or the same output for less input. In other words we are looking at increasing the efficiency of the system. In this paper I am not concerned with the return on investment in HE in general, either for individuals or for society. I am assuming that education is worth investing in, although returns appear to vary depending on the level of education. What I am interested in is the comparative cost effectiveness of conventional methods of delivery and ODL.

To compare or to measure cost effectiveness raises a lot of issues.

1) What are the costs, how do we measure them, and who pays for them? It is clear that the cost effectiveness of any system of delivery depends on who you are considering.

2) What are the outputs? Are they comparable? Are we comparing like with like?

3) What are the key variables? What situations favour one approach rather than another?

IS OPEN LEARNING COST EFFECTIVE?

In our investigation into the cost effectiveness of OL (CONTACT report 1991), we attempted to deal with these aspects. In the field of training 'value for money' has always been extremely important. Not only were trainers working within very restricted budgets, they also had to justify their spending. As OL techniques became more widely available, trainers increasingly used it as part of their provision. They tended not to get involved in producing OL materials unless they had financial help from the government. There were a few exceptions, but these occurred in quite specific circumstances. They have however been prepared to use materials that have already been produced as part of their training programmes. If we look at the reasons for this, they fall into three areas:
1) economics, 2) logistics and 3) control.

I will consider 2 and 3 first. In many cases where new technology is being introduced, the only way of training all the numbers required at the right time, is by using OL techniques. Conventional modes of delivery would take too long to train everyone, or the training would be carried out too early so that staff would not have had the chance to practise what they have learnt. By using learning packages, the training managers know exactly what staff have been taught, can be sure of consistency, and know that the time has been used as efficiently as possible. From their point of view they have maximum control over the training programme without actually running it themselves.

The economic benefits of using ODL is the strongest factor. The major costs in training are not the actual costs of the courses. For an employer, the costs of bringing people together; travel, accommodation and subsistence, and the cost of time away from work are the significant costs of training. ODL gives the opportunity for reducing expenses and time away from work. It does this by reducing the amount of time required for training, by providing flexibility as to when staff are trained, and in most cases, staff study in their own time rather than in working hours.

The combination of reduced training time, apparent increase in effectiveness of the training and flexibility in when people study has proved very persuasive for employers. A considerable amount of work has been done on the costs and benefits of ODL. This has showed that when all the costs are taken into account, the savings in using ODL can be significant (Coopers & Lybrand 1988). OL is sensitive to the cost of the learning material as this is directly proportional to the number of students. This is important in comparison with training where the tutor is bought in, which is a fixed cost as compared to sending staff away on courses where it is a cost per student. It is also dependent on the amount of support offered to students as this is often provided on a one to one basis.

However, all these investigations were looking at it from the point of view of users of the system, not from the view of providers. As HE Institutions, we are involved in a whole range of activities. These activities need to be prioritised as the intellectual resources, in particular, are scarce. One criterion is the economic value to the Institution of that activity. I was asked by the Continuing Education manager whether ODL was cost effective compared to conventional delivery or whether it was not worth their while getting involved. It was to answer this question that we carried out the investigation into cost effectiveness of ODL.

Methodology of the Investigation

The question we wanted to answer in carrying out this evaluation was whether it was worthwhile, in purely economic terms, for HE to be involved in OL and what factors, if any, affected the answer. In order to do this we needed to obtain an estimate of the cost of each type of mode of delivery. As the project developed, we found that it was extremely difficult to measure in any meaningful way how much a particular course or programme cost. We were, however, able to make a comparison between face-to-face teaching and OL.

We decided to approach this by comparing the costs of different modes of delivery, looking at the relative break even points and comparing the return on the investment in course development. In taking this approach we made several assumptions. We assumed that the outcome was independent of the mode of delivery if the qualification was the same, eg an MBA by distance learning was considered equivalent to a full-time MBA. This assumption raises a lot of issues about the student experience. In particular for an institution, whether the perception of a qualification delivered using ODL is the same as that of full or part-time mode. This assumption is probably false.

We attempted not to look at the absolute costs of each approach, but rather the differences. This meant that we had to assume certain costs were constant eg that staff costs/hour were the same, that accommodation costs per hour (when used) were the same etc. We also wanted to assess in what situations ODL would have a cost advantage over conventional modes of delivery. We were working within conventional universities who were looking at moving into mixed mode delivery i.e. offering courses through distance learning as well as full and part time. We therefore took examples of courses offered through both modes (wherever possible) and compared the development costs, relative break-even points and the relative 'profit' per student.

Summary of Results

Whether it is worth an Institution's while to develop OL courses is not a straightforward question to answer. It is dependent on a number of factors which can be put into two categories:

a) costs of development

b) numbers of students (in particular, the rate of throughput per period of time).

Development costs were difficult to define in any detail. However, they covered the following:

a) course development costs
b) writing costs
c) production costs
d) setting up the support infrastructure.

Points a) and b) are independent of the number of students and c) and d) are related to the number of students (although it is not a linear relationship). The problem in assessing cost effectiveness of any method of delivery is that costs are not directly related to the numbers of students.

a) Course Development Costs

Two elements make up the course development costs. There are the curriculum development costs, which are separate from the cost of production if an OL course is an adaptation. They are very difficult to assess since they include 'thinking time'. This is not easy to measure, since evaluating both the quantity of time and the value of that time is problematic. The other element is the fine tuning or testing of the curriculum development. This is what happens as the course is run with 'live' students.

This gives the opportunity to modify the course in the light of the students' responses. It tells the author those areas which are straight forward and those which need careful handling. It shows what questions the students are likely to ask. It gives a clear indication of the acceptable pace of the course and the likely amount of time it will take. Assuming that the students who take the course are likely to come from a similar background, it shows what assumptions can be made about their knowledge and skills as they start the course. All of this information is vital if the course is to be converted to a distance learning course. Costing this is difficult. The development costs will, or are likely to, have been paid for by the students' fees. The students' time in providing that feedback is not a cost incurred by the Institution. Whilst it would be possible to allocate development costs pro-rata to the number of students, it would, I think, be justified to write off the costs as the OL product can be considered a repackaging of a mature product. However, when we compare the costs of a mixed-mode institution with those of a wholly distance learning institution, it appears that development costs are acting as a subsidy.

b) Writing Costs

The time taken to write the material depends on the level of the subject matter, how 'mature' the course is (see my comments above), the author's experience of writing OL courses, the course length, and the medium used. The hourly rate that the authors will accept depends to some extent on what the authors consider to be the market value of their skills. There is a wide variation in what authors will accept. Acceptability is complex and depends not only on the value of their time but also on the perceived value or benefit of such an exercise. Some authors are prepared to spend time writing OL material not because they are highly paid but because it will release time to allow them to concentrate on activities which do pay a more attractive rate. Tutors will also develop materials where they enhance the effectiveness and perceived value of their teaching.

c) Production Costs

This is dependent on both the media used and the quality of presentation. Video is a lot more expensive than text, (of the order of $2000 per minute) but again the costs can vary enormously. In the OU, for example, the cost of producing the videos is approximately 20% of the total cost of production. The amount spent on the production depends on the expected number of students and the price of the material. There is an initial design and set-up cost and a cost per student for producing the material . The cost per student falls the longer the print run, assuming the numbers are sufficient to justify going to print. This is true of all media: video, audio, CBT (computer based training), etc, where the costs of reproduction per unit reduce as the numbers increase. Also, the greater the numbers, the more the fixed production costs per student fall. When the material is print based, if numbers are small, it is more cost-effective simply to photocopy. In that case, the production costs are directly related to the numbers of students.

d) Setting up the Support Infrastructure

This is a major element in the development and running costs of the OU's MBA (Master of Business Administration). Support in OL is vital as there is evidence that the crucial factor in successful completion of OL courses is not the quality of the material but rather the quality of the support the students receive as the Solo project run by the OU in Strathclyde, Scotland showed. Quality, however, is important in the successful marketing of the material, and it does influence students' perceptions of the quality of the course.

At present, the major savings in the cost of OL are in the delivery. As the teaching is mainly through the materials, the amount of tutor time required is reduced. However, some input is needed to provide tutorials and individual support. The savings in delivery are very sensitive to the amount of time spent by tutors. Students do need to be supported to motivate them and to ensure that they complete the course but the amount of support needs to be carefully controlled.

CONCLUSION

What we found was the following:

a) The number of students required to break even was in general higher for the OL courses than for face to face courses, full or part-time. Once that was reached, the potential financial contribution of the OL courses was greater than that of the conventionally taught courses.

b) The cost of developing an OL course was less for a mixed-mode institution than for a wholly distance teaching institution.

c) Converting an existing course was cheaper than developing a totally new OL course. This is not simply due to the fact that we were looking just at the marginal costs. The total cost of developing the course plus its conversion appears to be less than that of developing and writing a new open learning course.

d) The scale of operation affects the economics and can make comparison difficult. The calculations we used all assumed that the marginal cost of a student was decreasing as more students were added because the capital cost was a significant factor in the cost/student. Above a certain number, this ceases to be the case, as the capital cost becomes insignificant. The cost characteristics at that point become similar to that of a conventional mode of delivery.

As a result of the exercise, we became aware of the significance of a number of issues. Among these are the difficulties that educational institutions have in costing courses accurately. The marginal costs can be defined and evaluated reasonably well. The actual costs, including overheads and development costs, are much more difficult to assess. This is always going to be a problem given the range and interconnectedness of the activities undertaken by staff.

References

W. Foster & R. Sharratt, (CONTACT 1991), 'Report of the Investigation into the Cost-Effectiveness of Open Learning for Producers'

Open University and Coopers & Lybrand, (1988), 'Relative Costs of Open Learning'

Distance Education for In-service Teacher Development in Southeast Asia: Insights from a Pilot Programme

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ABSTRACT

The paper focuses on three important components of a pilot TEFL Distance Education Programme: the writing and production of materials, the training of tutors and the organisation of the delivery system. For each of these components, an attempt is made to compare the costs of distance education with conventional modes of delivery.

BACKGROUND

SEAMEO Regional Language Centre which is based in Singapore is one of eight centres in the S E Asian region established by the S E Asian Ministers of Education Organisation (SEAMEO). SEAMEO, established in 1965, aims at promoting regional cooperation among its members and associate member countries "in order to assist the governments of Southeast Asia to develop expertise and excellence in education, science and culture for the promotion of an enlightened and productive citizenry in their respective countries and for furthering the quality of life for all the peoples of the region". The mission of RELC is to respond actively to the growing and changing needs of the SEAMEO member countries RELC achieves its mission by conducting advanced training courses, including courses leading to higher degrees, undertaking and promoting research and disseminating information through seminars and conferences, library and information services and publications. The courses offered at RELC are particularly relevant to the multilingual and multicultural Southeast Asian region. Participants are recipients of scholarships and they are selected by their institutions and governments. Very often, they are key personnel expected to play an important role in the language education scene in their home countries.

THE TEFL DISTANCE EDUCATION PROGRAMME

This section will outline the development of the above mentioned programme. The programme is the result of the SEAMEO-Canada Programme of Cooperation in Human Resource Development which provides financial contribution to SEAMEO for a fixed sum over a period of five years (1991-1995). The programme aims at supporting the on-going SEAMEO regular programmes and strengthening the institutional capacity of the Organization in responding to the needs of human resource development in S E Asia. The TEFL Distance Education Programme is one way in which RELC seeks to strengthen its institutional capacity. The rationale for such a programme is that RELC would have to find ways of reaching out to language educators in the region who are not able to participate in the residential in-service courses at RELC.

Cooperating partners in the programme

York University is the lead Canadian institution chosen to implement the linkage activities at RELC. The Department of Teacher Education of the Ministry of Education in Thailand is the cooperating institution for the pilot TEFL Distance Education Programme. The pilot programme is currently based at two field centres which are the Teachers' Colleges now known as Rajabhat Institutes at Chiangmai and Nakhon Ratchasima.

Important stages in the development of the programme are outlined below:

Needs Analysis and planning visits

Sept '91 - April '92

Planning, preparation, writing, adapting, field-testing, revision of Course Materials

Dec '91 - Sept '92

Editing and designing of DE Materials

Oct '92 - Dec '92

Formatting/Desktop work on DE Materials

Dec '92 - Aug '93

Production of audio support material

Aug '93 - Sept '93

The paper will now focus on each of the three important aspects of a distance education programme.

Writing and Production of Materials

Project expenditure was high in this category as the figures presented below will indicate.

1. Expertise for writing, designing and desktop work

   Sing $ 53,612.47

   US $ 32,891.06

2. Materials development (field testing, fees for reprinting materials etc.)
   Sing $ 25,481.42
   US $ 15,632.77

3. Equipment (hardware,software and support materials)

   Sing $ 11,336.87
   US $ 6,955.15

Total: Sing $ 90,429.87
US $ 55,478.98

The above sum does not fully reflect the cost of materials development as the contributions of full-time and part-time staff at RELC were not costed under the project. The **in-kind contribution,** as it is termed in the project, for salaries of staff, office space and other facilities have been costed and would amount to a sum of **Sing $ 236,440** or **US $ 145,055.21.**

For a conventional Diploma in TEFL course (duration - 8 months course work and 2 months school practicum)
at the Srinakharin Wirot University at Prasarnmit, Bangkok, the estimated amount spent on instructional materials is
568,834 baht which is approximately
Sing $ 37,922.3 (US $ 23,265).

At RELC, an eight-week Certificate course in the Principles and Practice of TESOL is conducted as a residential course for participants on scholarship from SEAMEO member countries. The instructional materials are the responsibility of the language specialists who teach the various course components.

The advantage of the Distance Education 'package' of materials is that the package remains to be maintained and revised according to further requirements. In the event of programme expansion, the additional costs incurred will be for the duplication of materials.

Tutor Training

For the TEFL Distance Education course, five tutors, two field co-ordinators and the overall country coordinator attended a 4-day workshop at RELC. A Canadian DE specialist conducted the workshop to prepare the tutors for their role in supporting participants following the programme. The expenditure incurred is as follows:

1. Canadian expertise
   Sing $ 8,450

2. Tutors' expenses
   Sing $ 5,753

3. Further expenditure incurred by the cooperating institution for in-country travel and accommodation on route to S'pore. Sing $ 1,685
   US $ 1,034

Total Sing $ 14,888
US $ 9,135

In the conventional course at Srinakharin Wirot University, the training costs for the course included the following:

1. Six staff members sent on course to the UK for 3 months

2. One full-time expatriate specialist attached to the programme for 5 years.

An approximate assessment of expenditure for the above two items is:
1. Sing $ 48,750
2. Sing $200.000

Total: Sing $ 248,750
US $ 152,607

At RELC, tutor training costs are not incurred as the specialists deliver their own courses.

Delivery System

The expenditure in this section will include what is spent by the individual course participant as well as institutional costs involved in delivery.

In the TEFL distance education programme the out-of-town participant incurs costs when attending the orientation workshop,
the mid-course workshop and the end-of-course workshop.

So far costs incurred for the orientation workshop of three days for an individual participant is approximately **1350 baht** which is about **Sing $ 90** and since there are three workshops in the course each participant will spend a total of **Sing $ 270** (US $ 166). There is also postage and telephone costs which are estimated at Sing $ 100 for the entire course. This brings the total to **Sing $ 370 (US $ 227).**

The participants of the pilot TEFL programme do not pay fees but in the future, fees for the course will be part of their expenditure.

In the conventional TEFL programme at Srinakharin Wirot University, the expenditure for an out-of-town participant is as follows:

Accommodation: 12,400 baht
Living allowance: 22,800 baht
Total: 35,200 baht

There are also fixed fees that have to be paid for the two semesters of the course amounting to 10,260 baht.
Therefore, the total costs for the participant for the duration of the 8-month course is **45,460 baht.**

Overall total: Sing $ 3031
US $ 1860

At RELC, SEAMEO scholarships for participants of the 8-week course are valued at **Sing $ 5797** per participant. The main items included are as follows:

Accommodation: $1,400
Living allowance: $ 952
Tuition fee: $1,600
International travel: $1,200

Costs Incurred by an Individual Course Participant in Different Programmes

S$: Singapore Dollars

	Acc	Liv All	Fees	Pos & Faxes	Total
A	**S$ 180**	**S$ 90**	**NA**	**S$ 100**	**S$ 370**
B	**S$ 827**	**S$ 1520**	**S$ 684**	**NA**	**S$ 3031**
C	**S$ 1400**	**S$ 952**	**S$ 1600**	**NA**	**S$ 3952**

A: Distance Education Programme (9 months)
B: Srinakharin Wirot University Course (8 months)
C: RELC Course (On SEAMEO Scholarship) (2 months)

Institutional costs incurred for the delivery of the DE programme include costs of setting up systems at the field centres and organising the orientation workshop at both centres.

There is also expenditure for payment for payment of tutors and telephone costs incurred by tutors. The costs are as follows:

Field centre expenses: Sing $4,781
Tutor payments: Sing $4,500
Telephone costs: Sing $2,333

Total: Sing $11,614
US $ 7,125

At RELC and Srinakharin Wirot University, there are no specific delivery costs but there are other recurrent costs of staff development salaries and benefits, utilities for lecture rooms, administration buildings and offices.

IMPLICATIONS OF THE STUDY

The high costs involved in the preparation and production of course materials for the initial 'package' is a factor that was confirmed in this project. This has to be seriously considered by any institution contemplating distance education as an option in delivering courses. For writing language programmes, the experience of the project has been that the services of a good graphic artist will be more practical and effective compared to the many computer software programmes for drawing. This study also revealed the importance of field testing selected materials and tapping local resources for writing more appropriate course materials.

Tutoring the distance learner requires special skills and the insights gained so far from the project indicate that although an initial workshop is a good start, much more collaboration is required on the part of the tutors during the course. Tutor development will have to be an ongoing process especially in view of the increase in numbers when the programme is expanded. Costs can be kept under control if most training is held on-site with carefully selected expertise brought in for specific periods.

In terms of delivery, the benefits of the TEFL DE programme to the participant is clear. The teacher does not have to leave home or school to receive in-service training. The particular advantage of this programme is the assignment system which requires the teacher to apply new ideas and techniques in the classroom throughout the course.
Initial feedback has been meagre but encouraging and only an evaluation at mid-course and end-of-course will reveal what the programme has achieved. The delivery depends heavily on tutor support and this may pose problems of quality control in the future when numbers increase. As for the pilot programme, the strength rests on the calibre and dedication of the selected tutors.

REFERENCES

Southeast Asian Ministers of Education Secretariat. Revised August 1991, Inception Report for SEAMEO-Canada Programme of Cooperation in Human Resource Development.

A Comparative Study of the Financial Expenditures of Physical Education Courses in Distance Education System and the Traditional Education System at University Level

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ABSTRACT

The high expenditures of Physical Education as compared with other Fields of Study in Traditional Education System, call for a solution which while maintaining the standards, can reduce the expenses to a reasonable extent.

The results of this study show that Physical Education in Distance Education System, while maintaining the qualitative standards, entails considerably lower expenses than the Traditional Education System. On the other hand, the number of students in Distance Education is inversely proportional to per capita expense, whereas the reverse is true in Traditional Education (38% lower per capita expense in every 1000 students and 6.89 times lower expense in every 5000 students).

Furthermore, the results indicate that Distance Education Students were 22.3% better able to maintain their physical fittness after a year. The results of a questionnaire study on the experiments subjects also demonstrated that Distance Education Students were 68% better able to maintain their physical fittness and to develop" self-practice" habits.

INTRODUCTION

The rapid advances in scientific fields and the application of technological achievements in man's life on the one hand, and the failure in optimal utilization of body muscular system and the consequent epidemic of certain physical disorders on the other, have given physical education and other related sport sciences a very crucial status in the whole world and especially in the Third World Countries.

Being one of the most costly academic majors, physical education has encountered various obstacles in meeting the needs of everincreasing world population. At this juncture, it is of paramount importance to direct our attempts toward a diligent search to devise novel techniques in the field, as well as toward the application of modern educational systems which, while maintaining the qualitative standards, can reduce the financial expenditures too. To achieve these goals, research studies seem to present the most reliable promises.

The present study has been conducted to find out whether Distance Education System can play an efficacious role in this regard.

The OBJECTIVES OF THE STUDY

1. To find out whether instruction of physical education courses are more economical in Distance Edcation System (DES) than in Traditional Education System (TES).
2. To discover which of two systems trains a higher number of self-practice students.

THE PLACE OF THE STUDY AND THE NUMBER OF SUBJECTS

- The study was conducted in different cities of Iran at two stages:

1. A pilot study with 270 subjects.
2. The main course of the study with 4300 subjects.

The Extraneous Variables Controlled

1. Sex, the subjects were all male
2. The quantity and the quality of instruction by following the curriculum approved by the Ministry of Higher Education
3. Age, prior physical fitness, certain diseases, personal features, as well as regional climatic effects on physical fittness and efficiency.

PHYSICAL EDUCATION INSTRUCTION IN THE SYSTEMS UNDER STUDY

1. Distance Education System (DES):

The theoretical aspect was presented to subjects in the form of" self-study" books. As for the practical aspect, a guide book provided them with necessary directions to perform the exercises on their own. The exercises were designed in a way which not only minimized the need for a trainer or face-to-face explanations, but also obviated the need for most sports instruments, thus making it possible to practice at home, in parks or any other open space. Moreover, the subjects were given the chance to attend certain tutorial sessions.

Upon registering for a 4.5 month semester and receiving the self-study materials the subjects were briefed on the content and the procedure. They were also recommended to take part in the monthly tutorial sessions if necessary.

2. Traditional Educational System (TES):

Upon registering for a 4.5 month semester, subjects were required to attend 17 weekly sessions for practical exercises as well as theoretical information. There is not usually any provision for textbooks or guide books. The syllabus is for the most part scheduled by the trainer for a 20 student class.

THE EXAMINATION OF THE STATE AND MAINTENANCE OF PHYSICAL FITTNESS

An AAHPERD (American Alliance Health Physical Education Recreation and Dance) test was administered at three different stages. The aim was to examine the subjects' physical fittness at each stage:

1. As a pretest before the beginning of the semester
2. Right at the end of the semester
3. One year after the second administration

Out of the original 4600 subjects selected randomly, 1080 could obtain the required score at the first administration of the test (540 in each system) to enter the main course of the study. The following groups of subjects were excluded form the study:

1. Those beyond 17-29 years of age
2. Those with scores beyond 10-14
3. Those with energy consumptions above 3000 calories a day (such as farmers, construction workers, etc)
4. Athletes
5. Those with hampering diseases

Afterwards, the subjects in each system with the age range of 19-27 were divided into different age groups each consisting of about 50 subjects.

An attempt was made to keep a certain age group in both systems consistent in terms of number, average entry score and other experimental features.

Although the TES subjects had gained a total average of 11.25 which was 1.2% higher compared with DES subjects total average of 11, the difference was statistically insignificant

At the end of the semester the test was administered for a second time. The results demonstrated that TES subjects' total average of 17.49 was 7% higher than 16.09 of DES subjects.

And finally, at the third stage, the test was administered to the same subjects one year after the second test. The DES subjects obtained an average of 15.59 which was 15.3% higher than the average of 12.53 from the TES subjects.

To assess the improvement of DES subjects' average score at the third stage, we should also take into account their lower average score (7%) at the second administration.

The results prove that DES subjects were better able to maintain their physical fittness as well as their interest one year after the termination of their course.

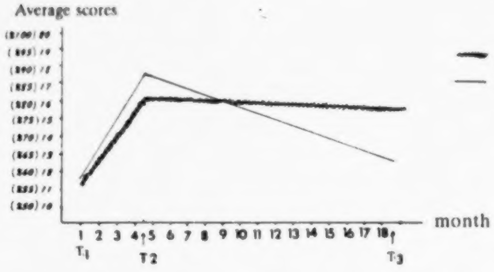

Diagram 1. The comparison of the physical fittness test results at three stages.

THE CLASSIFICATION OF FINANCIAL EXPENDITURES AND THEIR COMPARISON IN THE TWO SYSTEMS

The physical education expenditures under study can generally be classified into three groups:

1. Basic 2. Provision 3. Instruction

Basic expenditures comprise those of constructing offices and classrooms as well as gymnasiums and supplying them with the necessary installations and equipment. The subjects in both systems had access to equal facilities of this kind. (A gymnasium with the capacity of training 270 students in 7 sessions a day) Table 1 lists the first group of expenditures.

items	expenditures (US $)	Total
gymnasiums	216049	308641
offices and classrooms	92592	
sports equipment	18518	24691
office and classroom equipment	6172	
		333,332

Table 1: Basic expenditures

It has to be mentioned that as the outcome of these expenditures was real properties, they were not calculated per capita and consequently were not considered in the final interpretations.

The second group of expenditures, however, is different in the two systems. In TES, they are mainly the result of decisions made by planning officials as well as trainers.

In this system, each new semester requires new, short term planning determined by the number of students and the availability of instructors and equipment. In DES, on the other hand, these expenditures consist of:

1. Long term, country wide planning by the central planning office.
2. Processing, printing and distribution of text books.

The final results show that in DES per capita expenditure for groups of 100,540, 5000 and 10,000 subjects are respectively 12.5, 3.5, 1.4 and 1.2, while in TES for the same number of subjects they are $3, 3.01, 3.01, 3.03 and 3.39.

It is crucial to note that in DES, the number of students is inversely proportional to the expenditure per capita, i.e., the higher the number of students the lower the per capita expenditure, while in TES per capita expenditure is almost fixed and unaffected by an increase in the number of students. This reduction in DES is due to the almost long term nature of planning and book processing expenditures in which an increase in the number of students eventually cuts down on per capita expenditure. Table 2 illustrates the details of the second group of expenditures in both systems as well as their differences.

number of subjects	Education system	Type of Expenditures					Total US $	Per capita US $
		Planning	Execution	material preparation	printing	reprinting		
100	DES	41	108	432	670	-	1251	12.5
	TES	24	276	-	-	-	301	3
540	DES	43	635	432	802	-	1913	3.5
	TES	134	1496	-	-	-	163	3.01
5000	DES	61	5887	432	-	646	7026	1.4
	TES	1330	13851	-	-	-	15182	3.03
10000	DES	69	11774	-	-	771	12614	1.2
	TES	2870	31061	-	-	-	33932	3.39

Table 2: Provision expenditures for 100,540,5000 and 10,000 subjects in both systems

Diagram 2 compares per capita expenditure in groups of 100, 540, 5000 and 10,000 subjects in both systems.

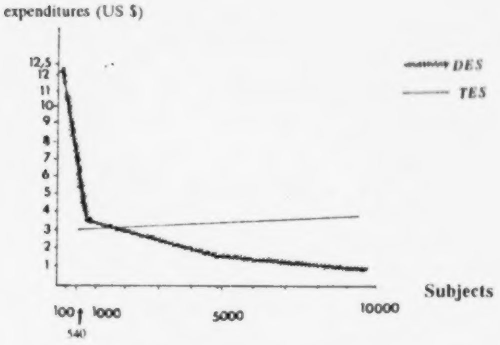

Diagram 2. per capita expenditure comparison

Instructional expenditures consist of payments made to instructors and trainers. Below the calculation of such payments in both systems are described.

1. ***DES***. the 540 subjects were divided into 8 groups (of 67 subjects) for theory classes and in 27 groups (of 20 subjects) for practice classes. Each group attended 3 theory and 2 practice problem solving sessions, bringing the total number of sessions to 97. Each session was found to cost $6.33, thus 97×6.33=$642 for 540 subjects.

2. ***TES***. the 540 subjects were divided into 27 groups (of 20 subjects) each attending 17 weekly practice sessions throughout the semester. This brought total number of sessions to 549, thus 549×6.33=$2905. A comparison of both expenditures reveals that TES is 4.73 times more costly than DES in physical education.

CONCLUSIONS

1. TES physical education has been 7% more effective than DES (17.49 vs 16.09). However, DES subjects were 15.3% better able to maintain their physical fittness after a year (15.59 vs 12.53).

A questionaire study with both systems' subjects demonstrated that DES subjects were 68% better able to preserve their physical fittness as well as their interest and perform the exercises on their own for one year after the termination of instruction.

Therefore, it can be concluded that in spite of a higher quality of instruction in TES, the effects of instruction and the concomitant behavioral changes were by far more durable in DES.

2. Provision expenditures in DES are higher per capita in 1000 students. However, due to the longterm instruction planning and book processing in DES, the increase of the number of students reduces the per capita expenditure ($1.2 in DES vs $3.39 in TES for 10,000 students.

The above figures imply this crucial fact that quantity plays a determining role in DES, i.e., this system is a successful one only at a large scale.

3. Instructional expenditures are 4.73 times higher in TES ($2905 vs 614).

Assuming that the basic expenditures are equal and taking the provisional ones into account, it can be concluded that DES, while maintaining the qualitative levels, is 38% more cost-effective than TES for every 1000 students. What is more, the expenditures reduce with the enlargement of the number of students.

In general, DES expenditures are 6.89 times lower than TES for every 5000 students.

REFERENCES

- B. Holemberg (1987). Distance Education
- F. Oeriel (1987). Educational Technology
- Higher Education in the 21st Century and The Critical Role of Distance Education, M. Parer, Monash Uni, Australia.

The Emerging Electronic University: a Study of Student Cost-effectiveness

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ABSTRACT

The paper presents a summary of a study on student cost-effectiveness. The study provides models for assessing the cost-effectiveness for students of electronic university efforts to support administrative decision-making. These models are sufficiently general to apply to different time periods, places, and technological and situational circumstances. Library and information science is the focal disciplinary area of the study. The study progresses in its analysis of student cost-effectiveness from conventional on-campus education, to conventional off-campus education, and to off-campus electronically based education. The study thus reveals some key characteristics of the new student marketplace that is evolving in the on-going transition from conventional to electronically based higher education.

Four models are applied: (1) payback and break-even, (2) return-on-investment, (3) net-present-value, and (4) internal-rate-of-return. The study focuses on assessment of monetary student cost-effectiveness at the degree-program level. It briefly discusses the issues of nonmonetary student cost-effectiveness, institutional cost-effectiveness, and joint institutional-student cost-effectiveness. Five data sets were collected, through questionnaires, interviews, and site visits, from three types of educational settings: on-campus, conventional off-campus, and off-campus electronically based education. The overall analysis reveals both that the various cost-effectiveness models are generally applicable and that they are sufficiently sensitive to support administrative decision-making. Illustrative statistical analysis reveals that off-campus electronically based education can produce marked increases in student monetary and nonmonetary cost-effectiveness.

INTRODUCTION

Cost-effectiveness analysis, which attempts to relate costs to expected benefits is critically important to education because it can be used as a planning tool to help decision-makers evaluate proposed educational system alternatives. As an auditing tool, it can be used to carry out pre- and postaudits of existing educational systems. Cost-effectiveness analysis can be applied to education at various developmental levels, and from the monetary and nonmonetary standpoints.

For the past few decades, many distance education studies have tended to concentrate on developmental and operational issues, with little attention given to cost-effectiveness issues. When cost-effectiveness is addressed, most studies tend to focus only on institutional cost-effectiveness. Very few studies have viewed cost-effectiveness from the student standpoint, despite its critical importance in the success or failure of electronic university and/or distance education efforts. The issue of student cost-effectiveness should be taken into account when decisions are made concerning program or course development. To a large extent, marketplace analysis will increasingly govern the development of academic institutions and programs.

This paper presents a summary of a study on student cost-effectiveness, conducted by the author of the paper, as part of her doctoral program.

PURPOSE

The main purpose of the study is to propose the use of models (i.e., payback and break-even, return-on-investment, net-present-value, and internal-rate-of-return) to evaluate student cost-effectiveness of electronic university and distance education efforts. The key focus of this study is on the assessment of monetary cost-effectiveness, primarily at the degree-program level, from the standpoint of distance education students. However, student nonmonetary cost-effectiveness is briefly discussed in order to provide a composite picture of the emerging electronic university student environment and marketplace for higher education.

The cost-effectiveness models employed in the study are intended to be generally applicable, so that they can be useful during the transitional era of conversion from traditional to less-traditional educational delivery systems. Obviously, the technological mix in many situations during this transitional era is costly, experimental, quite diverse, and highly dynamic. The models used in this study may provide reasonably standardized ways to evaluate the emerging electronic university student marketplace and the transitory technological mix under different circumstances, subject domains, geographical areas, etc. The cost-effectiveness models should provide administrative and legislative funders with measures of relative performance between traditional and nontraditional educational delivery systems in order to determine the best investment of educational funding.

STUDENT COST-EFFECTIVENESS AND ELECTRONIC UNIVERSITY

An electronic university is defined herein as one that delivers many or all of its programs and courses to students via remote-access, electronic technologies. The researcher views the term as a type of distance education which provides higher education through many types of electronic transmission (cable, microwave, satellite, fiber optics, etc.).

By way of definition, student monetary costs refer to such items as tuition and fees, costs of course materials, equipment costs, travel costs, and other incidental costs of studying. Student nonmonetary costs refer to a host of factors, such as anxiety and stress, academic adjustment, spending less time with families, and so on. Student opportunity costs refer to net incomes or other losses foregone by the student's giving up work to pursue an educational program. Effectiveness refers to comparative nonmonetary and monetary advantages that the student gains as a result of attending a university. Student nonmonetary effectiveness refers to such factors as gains from subjective preferences for given media, learning proficiency, prestige, and other psychological advantages achieved through education. Student monetary effectiveness refers to such educational benefits as increased earnings through career advancement and better fringe benefits.

Through distance education, people can gain access to higher education while overcoming barriers that might make the pursuit of traditional education impossible. Distance education students are normally working adults who no longer need to select between employment and education. Other possible benefits of distance education include greater income, further work experience, flexible class scheduling, and reduced travel costs. On the other hand, distance education also involves monetary and nonmonetary costs. Some of these likely cost factors are time, expenditures, reduced access to study facilities, less interaction with instructors and peers, and stresses on family and social life. Obviously, distance education students need to appraise these factors realistically before making educational choices.

PROBLEM SIGNIFICANCE

Enormous sums of money have been invested in electronic university and distance education efforts. At first, the key focus of attention was on either monetary or nonmonetary costs. Later, the benefits of these investments, likewise both monetary and nonmonetary, were considered. Seldom did educators inquire into costs versus benefits. During 1970s, questions of cost-effectiveness started to be addressed, thus giving administrative policy-makers and educators a better basis for developmental decision-making. However, many cost-effectiveness studies of electronic university and distance education efforts have had some serious limitations in one way or another. A major limitation that should be pointed out here is that most of these studies relate only to institutional expenditures and benefits (Rumble, 1986; Azad, 1988). Very few studies have taken into account costs and benefits of these systems from the student standpoint. Decision-makers should take into consideration the cost-effectiveness from the student standpoint, as well as that from the institutional standpoint, for both traditional and electronic university programs.

COST-EFFECTIVENESS MODELS

The cost-effectiveness models proposed in this study are existing models used in such business-oriented fields. These models are: (1) payback and break-even (PB), (2) return-on-investment (ROI), (3) net-present-value (NPV), and (4) internal-rate-of-return (IRR). In this study, these models are redefined to apply to the evaluation of planned or existing educational operations, particularly electronic university and distance education systems, mainly from the student perspective.

PB analysis indicates the point at which total investment costs equal total revenues of a project. ROI analysis provides a percentage rate that indicates the relationship between the profit from an investment and the total amount of the investment over an extended duration. Neither PB analysis nor ROI analysis take into account the time value of money. Application of these two models is thus not recommended as the primary approach to evaluation of alternatives. PB and ROI models are best used in conjunction with other models that consider the time value of money (FitzGerald & FitzGerald, 1987).

NPV analysis determines the amount of money to be invested at present in order to gain a certain return in the future. The sum of money an investor should invest in a project varies by the discount rate used in the calculation. This model, unlike the other two models (PB, and ROI), considers the time factor in the calculation. IRR is another model that considers the time factor. The IRR is defined as the discount rate that makes the NPV of a project equal zero. Because of various drawbacks of the IRR model, the NPV model may generally be recommended as the best model for cost-effectiveness evaluation of educational alternatives (FitzGerald & FitzGerald, 1987).

General formulae and detail information of these analyses for evaluating student cost-effectiveness in both on-campus and off-campus educational settings are provided in Yenbamrung (1992).

METHODOLOGY

Data collection

The purpose of data collection in this study is not so much for statistical estimation as it is for testing the applicability of the proposed cost-effectiveness models in various electronic university and distance education settings.

Three sets of data were collected from three different types of distance education settings. The first set of data was drawn from a group of 40 traditional off-campus students in El Paso who were pursuing a master's degree in library and information science at The University of Texas at Austin during Fall 1991. The students in this group who were taking the course "Introduction to Library and Information Studies" interacted with their instructor on a face-to-face basis at a study center on the UT - El Paso campus every other Saturday during the semester. The second set of data was drawn from a group of six electronic university students in San Antonio who were pursuing a master's degree in LIS at UT-Austin during the same semester. These students who were taking the course "Material for Children" interacted visually and aurally with their on-campus peers and their instructor live once a week via interactive video. The third set of data was drawn from a group of seven electronic university students who were pursuing a master's degree in information systems at Nova University, Ft. Lauderdale, Florida, via computer conferencing during Spring 1991. None of these students lived in the state of Florida.

To provide comparisons and contrasts of distance education students' cost-effectiveness with that of traditional on-campus students, two more sets of data were collected from two traditional educational settings. A set of data was drawn from a group of 72 traditional on-campus students who were pursuing a master's degree in LIS at UT-Austin during Fall 1991. Seventeen of these resident students were taking the course "Material for Children.". The rest of the resident students were taking the course "Introduction to Library and Information Studies." Data were collected only one time from the resident students who were taking both courses. Therefore, the two resident "subgroups" are mutually exclusive. The other set of data was drawn from a group of seven traditional on-campus students who were pursuing a master's degree in computer information systems at Nova University during Spring 1991.

Although the overall sample size in this study is small and may not represent larger populations, these data are used to illustrate issues involved in comparing on-campus with off-campus student cost-effectiveness.

Research techniques

Questionnaires, the primary tool used to collect data, queried the students primarily on annual gross incomes at different times (before, during, and after school), loans for their graduate studies, work experience, and annual extra school expenses incurred. Besides the questionnaire technique, telephone interviews, based on the questionnaire developed, were conducted for Nova University off-campus students, inasmuch as these students lived in different parts of the U.S. In addition, the researcher visited Nova University in Florida in May 1991, to interview deans, program directors, and instructors of the relevant master's programs to obtain an overall picture of the programs.

Data analysis

Statistical data analysis was performed on the UT-Austin on-campus and off-campus groups to produce basic descriptive statistics. Since there were strong demographic similarities of off-campus students in El Paso and in San Antonio, data from the two groups were combined. These results were used to compare and contrast monetary cost-effectiveness between the on-campus group and the El Paso and San Antonio off-campus groups. The two off-campus groups were, however, treated separately in the cost-effectiveness analyses because of their different degree plans.

Statistical analysis was not performed on Nova University on-campus and off-campus groups because of the very small size of the two sample groups. Individual cases are thus reported separately to illustrate student cost-effectiveness in various conditions.

FINDINGS AND DISCUSSION

Descriptive findings

Through descriptive statistics, the overall demographic characteristics of on-campus and off-campus students can be interpreted. Such characteristics as past, present, and expected incomes, educational expenses and other financial commitments, gender, and age are considered.

The sample data on the characteristics of on-campus and off-campus students reveal that almost all, 96%, of off-campus students are women, while 74% of on-campus students are women. A possible reason for this difference is that most off-campus students come from a school environment wherein a majority of professional staff are female. Regarding age differences, 63% of the off-campus group are over 40, in contrast to only 28% of the on-campus group. Older students thus appear to favor off-campus education; these students probably hesitate to uproot from established socioeconomic roles in their own communities and move to an on-campus, traditionally youth-oriented milieu.

An equal proportion, 87%, of on-campus and off-campus groups report work experience of some kind prior to entry into their program. However, a much greater proportion of on-campus students, 41%, were hourly workers, as compared with only 10% of their off-campus counterparts. The difference may serve to illustrate the actual and potential usefulness of distance education and electronic university operation in helping off-campus students to maintain the perception or actuality of higher professional or quasi-professional status. The annual average income of students for the year prior to entry into the program is about $18,000 for the off-campus group and $15,500 for the on-campus group. This represents a difference of about $2,500 or 16% higher for the off-campus group. While the income difference is not great, it does suggest that off-campus students are motivated to hold on to their more attractive incomes and greater fringe benefits.

A greater proportion, 78%, of off-campus students than on-campus students, 53%, work while enrolled in their programs. The off-campus group also tend to continue working in previously-held positions, earn about $8,500 more per year than on-campus students. In contrast, about two-thirds of the on-campus group gave up jobs to enter the program; they tend to assume library clerical positions, with the attendant loss of income and status. On-campus students tend to borrow money more heavily, by an average of about $4,000 over the off-campus group, to finance their education. They also plan to take about 6 years longer than the off-campus group to pay these loans back. The outcome of this is that on-campus students are saddled with a greater principle and interest burden for a longer duration.

A rather surprising finding is that on-campus students spend an annual average of $4,600 more than off-campus students for such items as child care, hotel stays, telephone calls, additional residential rent, and miscellaneous items. Over a two-year enrollment, these expenses can amount to about $9,000, which places the on-campus student at a very significant financial disadvantage against the off-campus student. This disadvantage is, however, offset by the greater expenditures of $1,300 of off-campus students for computer-related items. Given their relatively greater geographic dispersion, off-campus students (especially around El Paso) spend an annual average of $676 more than on-campus students to commute to and from classes. Nevertheless, on-campus students still end up spending about $2,600 more per year for all extra expenses than off-campus students.

Student cost-effectiveness findings

To apply the proposed cost-effectiveness models to real situations, five different educational settings (viz., UT-GSLIS on-campus, Nova University on-campus, UT-GSLIS off-campus [El Paso], UT-GSLIS off-campus [San Antonio], and Nova University off-campus) are analyzed for student cost-effectiveness.

For UT-GSLIS students, the results of student cost-effectiveness analyses reveal that two major variables that do impact student cost-effectiveness are whether the student works during pursuit of a degree, and whether the student benefits from distance education via interactive video. The most cost-effective case for all UT-GSLIS students involves an off-campus student in San Antonio who is a Texas resident, assumes no loan, works on a full-time basis during pursuit of the degree, and takes courses via interactive video. The worst-case scenario involves an on-campus student in Austin who is a non-Texas resident, assumes a loan, does not work during pursuit of the degree, and takes courses in a traditional on-campus setting. Results from the four proposed models appear to be interconsistent. For the best case, the PB is the shortest; the ROI, the NPV, and the IRR are highest. In contrast, for the worst case, the PB is the longest; the ROI, the NPV, and the IRR are the lowest.

For Nova University students, results of student cost-effectiveness analyses from the four models support each other, but are less mutually corroborative. For the best case, the PB is the shortest; the ROI, the NPV, and the IRR are highest. From the data collected, a student who is an on-campus international student and who works part time while pursuing his degree full-time, is the best case among Nova University students. Conversely, for the worst case, the PB is the longest; the ROI, the NPV, and the IRR are the lowest. From the data collected, a student who is an on-campus American student and who quit her highly-paid full-time job to assume a low-paying part-time job while pursuing her degree full-time, is the worst case. This student will never achieve a monetary payback on her education.

These findings point out that student cost-effectiveness modeling may utilize the basic methods of PB, ROI, NPV, and IRR. The PB analysis applied to the on-campus and off-campus groups discusses the relative importance of several variables. Whether students are subject to out-of-state tuition and fees, and whether they assume a loan, appear to matter little in the quest for monetary student cost-effectiveness. However, two variables (viz., whether the student works during pursuit of the degree, and the use or non-use of interactive video instruction) appear to be crucial. Thus, PB modeling can provide clues to the design or redesign of educational programs or courses to achieve student cost-effectiveness. Likewise, the ROI analysis can be used to identify key variables that influence student cost-effectiveness. From calculation, off-campus, state-resident students who work and assume no loan and who receive the benefits of interactive video instruction can achieve an average annualized ROI of an impressive 210%. ROI percentages are considerably lower for students who assume a loan and/or are not state residents. The lowest ROI percentages (a negative 28 to 46%) occur when students do not work at all during pursuit of their degree. As mentioned earlier, both PB and IRR do not take into consideration the time value of money in their calculations. Therefore, they are not recommended for primary use as cost-effectiveness analysis models.

The NPV analysis can also be used to identify significant variables in student cost-effectiveness. Over a 12-year period, adjusting for the time value of income and expenditures, off-campus students of all kinds (monetary borrowers or non-borrowers, residents or non-residents, workers or non-workers) can generally achieve a great deal more NPV through the benefits of interactive video instruction. Nonetheless, paying only in-state tuition and fees and the avoidance of taking out a loan are also crucial to achieving high NPV. The IRR analysis also serves to illustrate the importance for students of achieving the economically liberating benefits of access to off-campus interactive video instruction. The provision of interactive distance education permits students to achieve work income and avoid several kinds of costs associated with traditional on-campus education. Additionally IRR serves to highlight the great importance of working, avoiding the assumption of a loan, and of securing reduced, in-state tuition and fees.

Several case studies of Nova University on-campus student cost-effectiveness reveal that monetary student cost-effectiveness outcomes are heavily influenced by the degree to which students use education as a basis for income improvement. On-campus international students can improve their income merely through achieving student status in the U.S. and earning a part-time income that is greater than their full-time income in their home countries. In contrast, on-campus American students can suffer great financial losses, particularly if they give up their old positions, do not work while pursuing their degrees, and do not achieve upward income mobility following graduation. These students might never achieve a monetary payback on their educational "investment". A similar picture emerges from an analysis of selected cases of Nova University off-campus student monetary cost-effectiveness. About half of the students received or expected to receive a good PB, ROI, NPV, and IRR as a consequence of their educational pursuit. In contrast, the other half of the off-campus students can be expected to undergo very long or even indefinite payback periods, and to experience negative ROIs and NPVs. Their expected IRRs might be either extremely low, or not calculable due to their economically irrational behavior. These overall findings for students in this electronic university environment suggest that student behavior can be driven heavily by nonmonetary and monetary rewards. In some cases, the students who appear to be reasonably satisfied with their economic circumstances expressed little or no concern about the monetary cost-effectiveness of their educational pursuit. They appear to be driven by such intangibles as learning autonomy, curiosity, prospective change of occupation, continuation of social and work status, enhanced self-esteem, or intellectual challenge. Perhaps, in the emerging electronic university environment, such nonmonetary factors might be equal to, or more important than, the material rewards that students achieve or expect to achieve. These nonmonetary benefits may serve to characterize the emerging marketplace of the electronic university environment.

CONCLUSION

The study provides illustrative models of student cost-effectiveness at this transitionary and incipient phase of the electronic university movement. It attempts to formulate modeling approaches that can serve as a basis for statistical studies capable of yielding generalizations about the nature of student cost-effectiveness. Although this study does not employ inferential statistics, it provides illustrative statistical analyses. While the study provides snapshots of student cost-effectiveness at this point in time, it does not provide a longitudinal picture. The study illustrates similarities and differences that can exist in cost-effectiveness scenarios for traditional on-campus graduate students, their off-campus counterparts, and for electronic university students. The findings and implications of the study thus serve to capture the characteristics of a key component of the emerging higher-education marketplace in the U.S. and internationally -- that of student cost-effectiveness.

REFERENCES

Azad, J. L. (1988). "Financing of distance education: Some basic issues." In B. N. Koul, B. Singh, & M. M. Ansari (Eds.), *Studies in distance education* (pp. 157-166). New Delhi, India: Association of Indian Universities.

FitzGerald, J., & FitzGerald, A. F. (1987). *Fundamentals of systems analysis: Using structured analysis and design techniques.* New York: John Wiley & Sons.

Rumble, G. (1986). *The planning and management of distance education.* London: Croom Helm.

Yenbamrung, P. (1992). "The emerging electronic university: A study of student cost-effectiveness." (Doctoral dissertation, The University of Texas at Austin). *Dissertation Abstracts International*, 53(4), 973.

SUNY by Satellite: a Cost-effective Educational Model for the 21st Century

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ABSTRACT

Designed to provide access to quality education across the State of New York, SUNY by Satellite is a cost-effective model of distance education. Begun in September, 1992, this upper-division college program in business administration provides a baccaulaurate degree to adults via live, satellite broadcasts. It employs faculty from several campuses of the State University of New York, bringing their expertise to rural locations otherwise inaccessible to them. This paper provides a brief overview of the program's first year of operation.

INTRODUCTION

Cost-effective distance education will be the model of choice for the 21st Century. Expanded access to education is imperative for national development and enhancement of human resources. Telecommunications technology provides a means to increase access to educational opportunities in the face of severe resource constraints. One innovative model to meet these challenges is the SUNY by Satellite program.

The SUNY by Satellite program was developed by SUNY Empire State College at the request of the Chancellor of the State University of New York. As an innovative application of educational technology, this baccalaureate degree program is designed to contribute to the University's objectives of access, program quality and cost effectiveness. The goal is to develop a replicable, pedagogical delivery model that meets students needs and demonstrates the effectiveness, both academic and financial, of technologically-based educational programming.

PROGRAM DESIGN

To meet the two program objectives of student access and innovative use of technology, there are three key elements in this program:

Single Point of Instruction

Instruction is provided live via SUNYSAT, the satellite system owned by the State University of New York. Broadcasting live from studios at the New York Network in Albany, NY, talented, experienced State University faculty employ a wide range of instructional techniques. These include lectures, guests, panels, video cases, and computer graphics. To provide maximum flexibility for students, each telecast is video taped and available for students to review throughout the term.

Multiple Points of Learning

Students across the state of New York receive broadcasts at two-year college and industrial sites in or near their home communities. SUNY Empire State College handles all program administration and confers the degree; receive sites provide space and downlink services. Each receive site is connected to the studio by telephone and by computer; during class, students interact with the instructor via these connections, using an 800 (toll-free) telephone number.

Student Support and Evaluation

Receive sites have part-time coordinators at the receive locations who, in addition to setting up and monitoring classes, provide local orientation, enrollment advisement/ support services. These persons continue working with students from term to term regardless of the course a student may be taking.

Course tutors who have knowledge about the subject matter of the course are located throughout the state of New York and work at a distance with students. Course tutors evaluate student work and provide subject matter support to students by telephone, electronic mail and computer conference.

ACADEMIC PROGRAM

SUNY by Satellite is designed to enable associate (two-year) degree holders to receive a bachelor's degree with a major in Business Administration. Because the curriculum for this program is designed to build on the successful completion of a two-year associate degree, the SUNY by Satellite degree structure has three components:

* 64 credits from an associate degree from an accredited two year college in a business related field
* 32 credits from 8 upper division business administration telecourses
* 32 credits from general electives

PROGRAM ORGANIZATION

Types of Personnel

There are four types of professionals in this model. The **telecourse lecturer** plans the course, selects readings and texts, designs and authors a Course Guide distributed to students at the beginning of the term, designs assignments and writes tests and quizzes, delivers instruction and answers questions during the live broadcasts, and generally maintains academic quality and consistency for the course.

The **course tutor** interacts at a distance with the students between the *broadcasts via telephone, electronic* mail and computer conference, and evaluates student assignments and provides feedback. The student receives feedback quickly as tutors are able to critique assignments using electronic mail. The course tutor works closely, although at a distance, with the telecourse lecturer to insure academic quality and consistency for the course. As more students enroll in a particular course, additional tutors are hired to maintain a 20-to-1 ratio of students to a tutor. Thus the course size can increase without loss of student support.

Academic advisor/ coordinators are the only professionals at the receive sites with the students. One coordinator manages the classrooms at each site, providing technological support, collecting assignments to send to the tutors, and monitoring exams. In addition, the coordinator provides the emotional student support needed by many adults who have not been in class for a long time. Advisors provide local orientation, advisement, and registration also. This student support helps to decrease the perceived distance between the student, the telecourse lecturer, and the tutor.

The **SUNY by Satellite program staff** provides administrative and technological support to the other professionals and the students. Student registration and record-keeping are provided at a distance via electronic mail and telephone. All equipment purchases are handled centrally and all books are shipped directly to students from the Empire State College distribution center.

Coordination of all personnel and sites across the State is managed from the main office in Saratoga Springs, New York. Training on electronic mail and other available technologies, such as Internet and computer conferencing as well as equipment for purchases for all sites, is coordinated centrally. A video tape of the available technological resources is used at the beginning of every course to quickly train all students.

Types of Students

There are three types of students who are enrolled in SUNY by Satellite courses. The first type of student will matriculate directly into the SUNY by Satellite program. These persons are pursuing a major in Business Administration and will follow the total curriculum. All of these students have associate degrees from a community or two-year college.

The second type of student is one who is matriculated in some other program of SUNY Empire State College: one of the regional centers or the ESC Center for Distance Learning. These students are taking a course which fits their degree plan, but the concentration may be any of the ones offered through the College, not just Business Administration.

Finally, the third group is comprised of students who are not presently matriculated at SUNY Empire State College in any program. They may be considering matriculation or they may plan to transfer the course to another college or university. They may also be taking a single course for a personal or professional reason.

This program is designed to provide access for citizens across New York State. Therefore adults who have some college credits, but who do not now live near a college, may become interested in continuing their studies. We have a number of such students who begin with a single SUNY by Satellite course, expecting to matriculate in the near future.

COST EFFECTIVENESS

Costs for this model fall into four budget categories: studio and transmission costs, personnel, materials and site equipment. Approximately half of the total budget is for personnel. (It is important to remember that the State University of New York already owned the satellite system, including uplink and downlink capability, prior to the start of this program.)

Because costs of expansion are limited to site costs and additional tutors only, this program can be expanded easily and with minimum additional expense. The majority of the total program cost is associated with faculty, program production, and satellite transmission.

In the first year of operation, there were eight sites during the fall term and nine sites during the spring term. Four courses were offered each term, two on Tuesday and two on Thursday. Each of these nights, the courses were broadcast live simultaneously; thus, students could only register for one course on Tuesday and one course on Thursday. Transmission costs for two courses are the same as those for transmission of one course.

During the second year, nine new sites were added, bringing the total to eighteen sites. The budget increased less than 15% to cover site advisors and equipment at the new sites and additional tutors for a larger student group.

This means the reach of the program was doubled with only a modest increase in the cost of the program. Faculty, broadcast and transmission costs--the major expenses--were unchanged.

In addition, this model permits more isolated or rural regions of New York State to have access to this instruction with minimal equipment costs. This model has the potential for expansion, with slight modification, to permit including individual homes among the receive sites. Since interaction is through computers with modems and telephones using 800 numbers, handicapped or homebound adults would have access to education also.

PROGRAM EVALUATION

At the midpoint and end of each term, all participants were asked to evaluate this program. Information was collected from students, tutors, site advisors, faculty and Empire State College staff, using instruments designed to solicit opinions about the program from each perspective. All felt that this program's first year was a success.

Students believed that they learned the information for their course(s). They indicated that they felt comfortable with the live, satellite format using the telephone and computer as communication methods. They felt as though they were part of a larger group and that they had access to faculty and other necessary resources. Students also indicated that they developed a camaraderie with others at their site. Most indicated that they would take another course via this delivery method and would recommend it to their friends.

The faculty believed that they had facilitated student learning and had communicated their ideas clearly. Faculty found participation in SUNY by Satellite an exciting opportunity for professional development and all six faculty involved noted ways to improve their teaching in the future. All who participated in the first year want to do so again. Indeed, all faculty teaching in this program during fall term 1993 taught at least one term in SUNY by Satellite last year.

Tutors believed that they had worked effectively with students at a distance, that they had answered questions well, and that they had been able to communicate with students as needed. Tutors found using the computer for communication both convenient and efficient. Providing feedback on assignments via computer communication was a positive experience for them. Like faculty, tutors found the experience personally satisfying. Only one of the seven tutors does not want to repeat the experience.

Site advisors believed that students were learning. They commented on the high level of student interaction with both faculty and tutors. Advising adults within this innovative model was both interesting and professionally valuable to the advisors.

All groups noted the clear video, the audio quality, the value of well-designed/ well-written Course Guides, and the supportive student handouts.

Thus, after the first year of operation, all groups indicated that SUNY by Satellite is an effective, pedagogical method for study.

CONCLUSION

Using live, satellite delivery for instruction is a viable, cost-effective pedagogical model. As the number of students increases, the cost per student decreases. As the number of receive sites increases, overall program costs increase only slightly.

In addition, it is possible to have sites with very low enrollments which can be cost-effective and permit the delivery of instruction to very rural, isolated locations.

Principal features of the SUNY by Satellite model are a single point of instruction, multiple learning locations and effective student support materials and personnel.

While the model so far has been confined to a college-level, business administration context, that experience suggests the model could be adaptable to other subject areas or educational levels, such as high school or employment training.

In the 21st Century, distance education must develop alternative strategies which employ a range of technological options. SUNY by Satellite is one innovative model, already offering greater access to quality, educational opportunities in a cost-effective delivery mode.

Personal Computing: Transferring the Costs of Learning at Home

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ABSTRACT

A wide range of media are used by the UK Open University (UKOU) in its teaching. By the late 1980s, delivery of non-print teaching materials had changed to reflect the widespread availability of video recorders and computers in students' homes. These technologies offer great potential for home-based learners in terms of the educational experiences and opportunities they can make available. Since 1988, students registered for specific courses have been required to make their own arrangements for access to a suitable personal computer.

However, the educational use of information and communication technologies in the home has financial implications for students. Considerable concern has been expressed about the costs to students of acquiring suitable equipment and the possible impact on the University's policy of open access. Clearly the costs of educational computing in the UKOU have been redistributed.

The move to personal computing in the UKOU is examined and discussed in the light of findings from a number of evaluative studies and analyses of student data. In addition, an illuminating perspective is provided by a student's account of the implications of personal computing.

INTRODUCTION

The U.K. Open University (UKOU) has always used a range of media in its teaching. For over twenty years, students have been able to receive transmitted television and radio programmes in their own homes, and until quite recently those students who were taking courses requiring the use of a computer were able to utilise a networked terminal at one of the University's local study centres. In the late 1980s the delivery of non-print teaching materials changed dramatically due to the widespread availability of domestic video recorders and home computers. These technologies are seen as having great potential for home-based learners in terms of providing access to high quality educational experiences and opportunities. Increased use has been made of video-cassettes for teaching purposes and, since 1988, students registered for specific courses have been required to make their own arrangements for access to a suitable personal computer - preferably at home.

However, the educational use of information and communication technologies in the home has financial implications for students. The UKOU's Home Computing Policy was introduced in 1988 amidst a vigorous debate about the cost to students of acquiring suitable equipment and the possible impact on the University's policy of open access. Clearly the costs of educational computing in the UKOU would be redistributed, but it was difficult to predict in advance what the effects would be.

In 1992 about 17,000 UKOU students were using a PC to study courses covered by the Home Computing Policy. Many aspects of that policy have been monitored and evaluated since its introduction. This paper presents the experience of the University since personal computing was introduced in 1988, examined and discussed in the light of findings from a number of studies and analyses of student data. An individual student's account of the implications of personal computing adds an illuminating perspective to the discussion.

IMPROVING THE QUALITY OF LEARNING WITH COMPUTERS

The move to home-based computing was driven by issues of both quantity and quality. The terminals located in study centres were linked by telephone line to mainframes at the UKOU and allowed students to gain practical experience of computing. A wide range of courses used the networked terminals to enable students to learn about programming, to process data and to interact with computer-assisted learning (CAL) packages. However, only a limited amount of access time was possible for each student and some of the very popular computing courses had to restrict their student numbers each year due to the limited capacity of the system. Students who took courses that required practical computing activities found it inconvenient to arrange access (booking sessions, travelling to the study centre, etc.) and often experienced problems getting the equipment to work in a satisfactory way. The terminals were text-only, so the range of computing activities that could be undertaken was limited. Computing exercises requiring sophisticated graphics, animation, etc. could only be undertaken at a residential school; an option that was not available for all courses and one that still limited the access time for individual students.

The UKOU became concerned about the limited computing opportunities it was able to offer and considered how to improve the situation. The arrival of moderately powered and relatively inexpensive PCs in the mid-1980s seemed to offer a solution: students could have access in their own homes to undertake fairly sophisticated computing activities as and when their course work required. Each student would be able to gain a considerable amount of practical computing experience and courses would not need to limit student numbers.

ACQUIRING EQUIPMENT FOR STUDY PURPOSES

Discussions within the University about the adoption of a Home Computing Policy were concerned not only with the technical specification that would be most appropriate, but also about the costs to students of acquiring suitable equipment and the consequences of requiring home access for specified courses. In 1988 it cost students at least £500 to buy an IBM PC compatible machine, while the fee for hiring a machine from the University's pool was £150 per year. To what extent would the hardware and software costs deter people from registering for 'home computing' courses? Would students maximise their investment in a PC by registering for a series of courses requiring the use of a computer?

In order to ease the financial burden of acquiring equipment the UKOU managed to secure funding for a pool of PCs that could be hired by students for the duration of a study year. In the early years of the Home Computing Policy about 30% of students taking the specified courses were able to hire equipment from the pool. In addition, funds were allocated to establish a tuition fee reduction scheme that applied to all those taking Home Computing courses. So, what were the financial effects on students?

It is very difficult to ascertain why people *do not* do things; there are usually a number of factors involved, particularly within the modular course structure of the UKOU. In order to explore the deterrent effect of costs required targeting certain groups of potential Home Computing students. In the first year, 1988, a survey was undertaken of students who had applied to take one or more of the Home Computing courses, but had then decided against it (Saxton, 1989). The cost of equipment hire or purchase was mentioned as a significant reason for not taking a course by just over half of the women and just under half of the men who responded. A subsequent survey (Jones and Singer, 1992) went to students who had the appropriate course background for taking the available Home Computing courses, but who had not chosen to register for one. As would be expected, students usually indicated a number of reasons for not taking a course with a home computing component, but almost half of those who had considered taking one felt that the cost of getting a computer was too high.

In terms of the subsidy applied by the UKOU in the form of a tuition fee reduction for all home computing students, the overall effects were not as anticipated by those who proposed the scheme. The students who gained most from the scheme were the people who already owned or had good access to a PC: these students - much more likely to be men than women - were getting courses at a reduced rate and did not need to make the initial financial outlay specifically for their studies. Overall, more men than women registered for the Home Computing courses, so the subsidy to male students as a group was more than four times as great as that to women as a group, estimated as roughly £236,000 and £58,000 respectively for 1988 (Kirkup, 1989).

It was often argued that the cost to students of acquiring computing equipment would not be considered excessive if they registered for a series of courses with a home computing component, thereby spreading the financial outlay over a number of years. Three undergraduate courses were covered by the Policy in 1988; by 1991 the number had risen to 11. By looking back at patterns of course registration over the first four years of the Home Computing Policy we can examine the extent to which students have (or have not) combined a number of home computing courses in their personal course profile (Kirkwood, 1993). Of the 3,645 students who took a home computing course in 1988, almost half (48.8%) had not taken another such course in the period up to the end of 1991, while over a quarter (26.8%) had taken only one further home computing course. More than 10,000 students finally registered for home computing courses in 1989: Over half (58.3%) had not taken a further home computing course by the end of 1991 and only a quarter (26.9%) had taken one such course. Of the students finally registered for a home computing course in 1990, the proportions were two-thirds (67.2%) and less than one-third (30.3%) respectively. Clearly, the notion that there is a large core of 'dedicated home computing' students who are maximizing their investment in equipment does not seem to be borne out by the registrations to date.

There is a further problem for our part-time students who spread their studies over a number of years: the technical specification for home computing has changed over time. Courses first presented after 1990 have been designed for PCs with a higher specification than was previously expected and another change in specification will take effect for courses presented from 1996. A student who acquired a PC in the early years of the Home Computing Policy will be unable to take any of the newer courses unless they change or significantly upgrade their equipment.

DEVELOPING NEW WAYS OF PROVIDING COMPUTING EXPERIENCE

When the UKOU adopted its Home Computing Policy it started to move from *providing* access to computing equipment for students to *requiring* students to arrange suitable access. Although some of the costs of enabling students to gain practical computing experience were transferred from the University to students themselves, new financial demands became apparent. What savings would the University make if it no longer needed to maintain its network of terminals in study centres? What have been the additional costs to the University of preparing and distributing multiple copies of high quality software?

There has been a dramatic change in functions of the Academic Computing Service (ACS) as a result of the move to home computing. ACS no longer needs to maintain the networked terminals in study centres, but it does have to advise students and staff about problems with PCs. There are some significant differences between ostensibly compatible machines: some require 5¼ inch disks, others take 3½ inch disks; additional instructions were required by students using hard disk machines, etc. ACS also has to make multiple high quality copies of the software it has developed for teaching purposes. In 1988, about 47,000 floppy disks were distributed to students; by 1990 the annual figure had risen to 180,000 (Butcher and Greenberg, 1992) and in 1992 the UKOU's millionth floppy disk for students was produced. Strict quality control procedures are obviously necessary during production and some members of the Software Development Group within ACS were assigned to Quality Assurance roles.

SUPPORTING STUDENTS AND PART-TIME TUTORIAL STAFF

What additional costs have been incurred in providing students and tutorial staff with support for their home-based computing activities? If students were to undertake computing activities in their own homes (or at their place of work) a variety of support mechanisms had to be put in place. Not only was it important to help students to acquire suitable equipment and software; many also needed guidance on its use. No matter how good the written instructions on the use of the PC and associated software are, students with little or no previous computing experience are likely to need help and guidance of a more personal kind, as they need to develop not only competence but also confidence in using a PC. The ACS Help Desk provides an advice service over the telephone. Advisers need to be able to diagnose students' problems and offer advice for a multitude of different machines: this is often very difficult to achieve when working solely from a verbal description of a problem provided by a very frustrated student!

The staff who are responsible for tutoring courses which include home-based computing need to be familiar with the hardware and software used by students in order to understand and deal with any problems. This is particularly important if a course is using a PC as a general purpose educational tool, as tutors for such courses may have limited computing expertise. The UKOU has had to ensure that tutors have good access to a PC and receive adequate guidance in its use. Some tutors, particularly those for the Technology foundation course, did not previously have home access to a computer; some were unfamiliar with a PC. In addition, there are financial implications (insurance, etc.) if tutors' machines have to be transported to tutorial sessions. If a course is to include computer mediated communication, tutors will require briefing and training on the successful use of this facility, particularly if they are to encourage active student participation and the development of dialogue.

PERSONAL COMPUTING: A STUDENT'S VIEW

First, it might be appropriate to indicate the likely costs to a student of studying *any* course with the UKOU, before discussing the costs of the personal computing element associated with a given course.

The cost of a full-credit course in the Undergraduate programme in 1993 is £260; a half-credit course is £130.

[The Undergraduate programme is subsidised by the Higher Education Funding Council (HEFC) formerly known as University Grants Committee (UGC).] This fee includes all course materials and tuition, but not any Set Books, which have to be bought by the students. If there is a residential summer school involved with the course, the additional fee for this is £177 in 1993. In general, however, courses for which students are required to have a personal computer for study do not have a summer school, although they often do include a day school. Of course, the above figures do not include the many 'hidden' extras, for example, the cost of travelling to and from study centres for tutorials or day schools.

COMPUTING REQUIREMENTS

In 1988 the UKOU introduced its Home Computing Policy. Prior to that students who required access to a computer for their course work used the facilities offered at study centres. The Home Computing Policy basically means that students who opt for courses requiring the use of a computer must have good access to a suitable computer (PC). Details of the kind of equipment required is sent to students with the conditional registration documents, several months before the study year commences. Many students buy or already own a suitable computer. It is also possible to hire the necessary equipment from the University if registered on the Undergraduate programme. So what does home computing entail for the student? I give below an account of my own personal experience, starting as someone who was a novice to computers.

The first course I took which required access to a computer was *DT200, An Introduction to Information Technology*. As I did not know whether I would want to study further courses requiring a computer in the future, I opted to hire the equipment from the University. At that time the hire fee was £150. Another reason for hiring the computer was that I did not know what I needed to buy. Although the University sends out a specification of what is required, I did not understand much of it. For example, I did not know what a RAM was, nor what MS-DOS meant! This course also required the use of a modem to communicate with one of the University's mainframe computers and to use the computer conferencing system. Although the modem was provided on loan by the University, the telephone line in my house was hard wired and needed to be upgraded to a modern British Telecom standard jack socket. This conversion cost me an additional £25. Apart from this expense, there were telephone calls to the mainframe computer at the UKOU: for me these were at local call rates, but for some students these were long distance calls. On average, my quarterly telephone bill was about £20 higher than usual.

One important item on which it is difficult to put a price is my time. I was trying to cope not only with the demands of studying the course, but also with the practicalities of personal computing. I needed to become familiar with the computer and the different software packages associated with the course as well as studying the course materials, completing assignments, etc. I found that the 2 hours I had set aside every evening for study was not enough; I needed between 2.5 to 3 hours.

Although the cost of the course was marginally high in terms of money and time, I feel that the knowledge and hands-on experience I gained outweighed it.

I subsequently acquired my own 286 computer (bought on credit), which is portable and has a built-in modem. It meets the current University specifications for home computing courses. However, since buying it, the UKOU has decided that from 1996 home computing courses will require, as a minimum, an IBM PC-compatible computer using the MS-DOS 5 operating system and with the following specification (Open University, 1993):

- At least 386SX central processing unit
- 4 Mbytes RAM
- VGA colour monitor
- 40 Mbytes hard disk
- 1.44 Mbytes floppy drive
- Serial and parallel ports
- Mouse (Microsoft compatible)
- Graphics printer
- 2400-baud modem (internal or external) with MNP5 error correction
- Microsoft Windows 3.1 software

Clearly my 286 computer does not meet the above specifications. Therefore, for me the questions are:

- Do I complete my degree before 1996?
- Do I take only those courses which do not require a computer?
- If I want to take further home computing courses, do I take only those that are first presented before 1996, so that I can use the equipment I have at the moment?

  (i.e. avoid any new courses which may be of interest but require the higher specification)
- Do I yet again invest money in either upgrading or buying new equipment?

It is extremely difficult to decide now about the future, because computer technology moves so quickly that whatever one buys today will be obsolete within about two years. The UKOU needs to offer courses that train and update students on the latest available technology. At the same time, students find that they need to invest finances to keep up with the technology that enables them to take the courses offered by the University.

CONCLUSIONS

This paper has considered a number of ways in which the costs of educational computing at the UKOU have been transferred and redistributed. The financial implications of adopting a Home Computing Policy affect not only students (or potential students) of home computing courses, but a variety of staff based at the centre and throughout the country. Students need to make cost-based decisions related not only to the acquisition and operation of a personal computer for their studies, but also to the choice of courses that are available to them.

REFERENCES

Butcher, P. G. and Greenberg, J. M. (1992) 'Educational computing at the Open University: the second decade', *Education and Computing*, *8 (3)*, 201-15.

Jones, A. and Singer, R. (1992) 'Why don't students take Home Computing courses?', Report no. 163, Centre for Information Technology in Education, Institute of Educational Technology, The Open University.

Jones, A., Kirkup, G. and Kirkwood, A. (1992) *Personal Computers for Distance Education*, Paul Chapman, London.

Kirkup, G. (1989) 'Equal opportunities and computing at the Open University,' *Open Learning*, *4 (1)*, 3-8.

Kirkwood, A. (1993) 'Home computing students' course histories', Centre for Information Technology in Education, Institute of Educational Technology, The Open University (forthcoming).

Open University (1993) 'Information about Home Computing for 1994 courses', Milton Keynes, The Open University.

Saxton, C. (1989) 'To compute or not to compute', Report no. 84, Centre for Information Technology in Education, Institute of Educational Technology, The Open University.

The Economics of Collaborative Publishing in Distance Education

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ABSTRACT

The move towards publication of distance teaching texts in collaboration with commercial publishers represents the most radical shift in the UK Open University's system of text production since its inception. In this paper the new system is compared with traditional methods of course publication, and their relative costs are identified by means of a case-study. Evaluation of this case also reveals some pedagogical difficulties involved in the new process.

INTRODUCTION

Until recently all UK Open University (OU) undergraduate courses were published in-house, with the university bearing the full costs of materials production. The main components of these courses are teaching-texts (units), studied in conjunction with some combination of set books and readers, television and radio programmes, and other ancillary material associated with practical exercises and the assessment of student performance. However, since 1986 a number of courses have been copublished, in full or in part; twenty-seven such courses by 1993 and, by 1995, a further twelve.

Collaborative (or co-) publishing involves "the publication of our main teaching text material in a form suitable for sale on the open market and in collaboration with a suitable commercial publisher. Main teaching text has traditionally been produced as A4 units, bound singly or in twos or in blocks. Copublications present this material in chapters, collected in fewer bindings and printed in a book size which is usually smaller than A4. As the main teaching texts for a course, copublications are supplied to OU students for their course fee, just like A4 units". (Wilson, 1993, p.1) They are also written and processed in-house -- up to film, camera-ready or bound copy stage -- by the same range of staff who prepare and handle conventional course units. The OU keeps the copyright on copublications.

COLLABORATIVE PUBLICATION

Systems

There are two main systems for copublication, each related to a particular set of circumstances. The first is the more common.

When the publisher can produce course material more cheaply
In this case, the university prepares the course material to film stage, for hand-over to the publisher. The publisher then prints and binds the books, markets and stores them, and distributes them to commercial outlets. The university *buys-back* an agreed number of copies for despatch to its students, at a cheaper price than the books are sold commercially, and more cheaply than either internal book or conventional A4 booklet production would allow.

As well as sharing the costs of printing and binding, publishers undertake to market, store and distribute the books to commercial outlets. Usually, they also contribute to some of the university's fixed costs (for example they may pay for all or some of the film used).

When the university can produce course material more cheaply
In this case, the university produces bound copies which it *sells-on* to the publisher, reserving the number of copies it needs for student use. The publisher markets the books and distributes them to retail outlets, as before.

Both systems entail much longer print-runs (typically, they are doubled), since commercial sales are added to OU student demand. This reduces the unit costs of the books to the publisher/university. In both cases the publisher pays the university a royalty on every book sold commercially. By 1992 income from royalties exceeded £150,000.

Advantages of copublication to the university

As we have seen, copublication results in significant financial gains to the university. It produces savings in fixed and variable production costs, and both increases sales of course material and generates income through royalties.

Apart from these advantages, in some instances the quality of course material is actually improved through copublication, in particular when complex illustrations are required in-text, or four-colour printing on high quality paper. And there is added flexibility: the size and format of books in different subject areas may vary, according to need and on advice from a publisher who specialises in producing and marketing books in the subject area in question.

Selling these books commercially not only boosts sales of OU course material but also increases awareness of what the university can offer. This results in a wider audience (increasing enrolments in the undergraduate programme?) and a higher profile for the university within the UK. And, through their international networks, commercial publishers are "a potentially significant vehicle for enhancing the OU's reputation as a pioneer of high quality academic and distance teaching materials". (Brook, 1991, p.1) Publishers also help the university to protect its copyright, so discouraging covert photocopying of course material.

However, copublication has involved some changes to conventional OU production methods. Traditionally, preparation courses is staggered, with course material handed over to editors, and from them to print and production staff, part by part. Production of the last parts of a course may still be in process while the first part of it is actually being studied by students, and fairly flexible hand-over and production schedules may accommodate delays and missed deadlines. In cases of copublication, however, all the material must be handed to publishers at once, and by the deadline. Financial penalties attach to late delivery and to material that is over the agreed length, which are borne by the faculty concerned. This entails stronger systems of academic quality control, which may place a greater burden on faculties and course teams and, especially, on writers. (On the other hand, writers are able to count what they produce as 'proper' publications.)

Comparative costs: a case-study

When an OU course team wishes to opt for copublication of its teaching material it must first seek approval from the university's Collaborative Publishing Sub-Committee (CPS), which has a membership of senior academic staff and university administrators. This entails prior consultation with the Book Trade Department, to ensure that the course will be attractive to publishers and towards presentation of an academic and commercial case for copublication. Once the Committee has accepted the prima facie case for copublication, the Book Trade Department "sends out invitations to tender based upon set publishing requirements. The tenders, once received, are compared to an in-house quote and reviewed by the CPS. If a suitable tender is identified then a contract is agreed with the publisher." (Fuller and Luxon, 1992, p.3)

The financial case, then, rests on comparison of the costs of producing and presenting the course along traditional lines and by copublication. Table 1 shows an abridged version of such calculations, for a course first presented in 1988.

	Description	*Total Cost*	*Print Run*	*Unit Cost & (Total Cost to Student)*	*Royalties*
A4 Costs	A4 size 10 items 500,000wd	£32,667	1483	£2.20 (£22.00)	
Co-publ. Costs	demi-octavo 4 books *390000wd	£17,430	5000 (2100 to OU)	2 Bks @ £1.90 2 Bks @ £2.30 (£8.40)	5% of pub. price (UK) 7%..(export)

* In addition, a 'Study Guide' to accompany each book was prepared internally, at very low cost

Table 1. Comparison of A4 and copublication costs (adapted from Fuller and Luxon, 1992)

In this case, copublishing the main teaching-text cost just over half the amount needed for internal, A4 production. The cost of copublication is further reduced if we take into account payment for film or camera-ready copy, and royalty income each year. In some cases, through collaborative publication the university can prepare two courses for the price of one.

COPUBLICATION AND PEDAGOGY

As we saw, course teams are also required to prepare an academic case for collaborative publication: the CPS does not grant permission for copublication unless it can be shown that pedagogical considerations have been weighed up against the potential for cost savings. The issues discussed below are among the most contested aspects of copublication within the university community.

'Content' versus 'teaching'?

In traditional OU undergraduate courses, the main teaching texts (A4 units) normally form the backbone of the course. They present much of the material to be studied, and include practical activities or exercises which enable students to test and develop their comprehension of the subject-matter as they study. The units also integrate the various other course components, pacing and directing students' work appropriately. Thus, at particular points, students may be directed to read a chapter of a set book, or a reader article, or to view/listen to video and audio bands or broadcast TV/radio programmes. Often, students are asked to complete exercises based on this material too. They then return to the units, where they find some further discussion of the issues presented in the set book, on TV, or in relation to an exercise. The teaching narrative may flow on from such discussion seamlessly, unmarked typographically.

So, material presented in set books, on TV and so forth, both 'punctuates' the subject matter/teaching narrative and is woven into it. Such material may provide alternative viewpoints to those discussed in-text, helping students to interrogate the units and 'debate' the issues. Also, in traditional teaching texts writers usually address students directly and informally, in the attempt to engage them actively in such thought and debate. This approach to distance teaching, or type of text, is sometimes referred to as the 'tutorial-in-print'.

However, as we have seen, copublication involves producing the subject-matter of the course in relatively 'stand-alone' form: that is, as books which may be read and understood by students studying other (conventionally taught) courses or by people who approach them simply as interested readers. In extreme cases, the copublished books do not include any of the activities or teaching exercises which are designed to help OU students practise newly-acquired skills or extend their knowledge and understanding by applying it in new contexts. And, far from integrating the various parts of the course, the books may make no reference at all to those course components which only OU students will receive and study -- notably, set books and audio-visual components. Moreover, they are sometimes written in the more formal, impersonal mode associated with text-books. Indeed, since course writers know that copublished texts may have a very wide readership, and will be more than usually subject to scrutiny and the possibility of criticism, they are arguably more inclined to write with an eye to the judgements of their peers than to their students' study requirements.

As a solution to these difficulties, additional 'teaching booklets' are often prepared for OU students of the course, as a companion to each copublished text (the 'Study Guides' referred to in the case-study presented above). Stripped of their teaching narrative, for the subject-matter of the course is now presented in copublished book form, these booklets may contain little more than lists of exercises, with fairly perfunctory 'answers' provided, and directions to read parts of set texts or view/listen to audio-visual components at appropriate points. They are usually produced as cheaply as possible.

Detailed evaluation of students' reactions to one such course has revealed that this model of copublication is unsatisfactory from a pedagogical point of view. Throughout the course, random samples of students consistently responded negatively to the Study Guides, finding them generally unhelpful and unattractive. The Guides did not contextualise or integrate students' study of other course components adequately. Nor did the teaching exercises they contained clarify the issues raised in copublished texts, or enable students to explore them with much confidence. The evaluators argued that, in this case, the 'study guide solution' to the problem of stand-alone books is no solution at all since, in the process, 'course content' and 'teaching' have become separated. Moreover, "...it may seem to our students that while 'subject matter' is presented in the high-status form of published text, 'teaching' is relegated to internally, and rather poorly, produced Guides -- with approximately 80% of the 'words' in the course devoted to the former and only about 20% spent on the latter". They concluded that "in copublished courses it will be important to find ways of maintaining both the appearance and reality of the OU's commitment to direct, explicit teaching". (Chambers and Pearson, 1989, pp.9-10)

Happily, since then a number of copublished course books have incorporated distance-teaching techniques, including in-text activities and exercises. Indeed, it seems that among commercial publishers there is "increasing...acceptance of the 'tutorial in print' style and a recognition that this does not have to be offputting to the general reader -- indeed it can be a positive selling point for many texts". (Brook, 1991, p.3) That said, it may be particularly appropriate for distance teaching institutions to seek to copublish higher level courses, in the knowledge that students of these courses are in a better position to achieve success through more independent study. However, it seems that publishers are much more reluctant to include references in copublished books to course components which are unavailable to the general reader, and so will be unintelligible to them-- a matter to which we now turn.

'Text' versus 'electronic media'?

The very real production savings the university makes through copublication, and all royalty payments, are divided 50:50 between it and the Faculty which produces the copublished course. Faculties normally pass on 50% of their share to the department concerned. Collaborative publication is therefore seen as a very attractive proposition by most faculties and departments. However, whether publishers are interested in collaborating with them depends upon their judgement of the market. Markets fluctuate and are uncertain, and publishers may judge that some subject areas lend themselves to copublication more readily than others. The danger in this situation is that 'disadvantaged' departments may seek ways of making their courses acceptable to publishers which may not be in OU students' best interests. Some subject areas (and departments) would seem to be at a particular disadvantage -- especially those disciplines which, optimally, depend upon use of audio-visual or other electronic teaching media.

Most OU courses have traditionally included TV or video programmes, for instance, and they are regarded as an essential component of courses in which it is important to demonstrate dynamic processes (for example, in physics, chemistry or engineering), present real-life case study material (in social, education and business studies), show elements of performance (drama, music), or enable analysis of objects and places from which students are separated, either in space or time, and cannot see for themselves (landscapes, buildings, paintings, archive film of historically important events), and so forth. Because, at the moment, most commercial publishers are equipped only to produce text, and most booksellers sell only books, video cassettes are not sold alongside copublished course books. Therefore the general reader does not have ready access to them. In this situation, the danger is that integration of audio-visual elements within OU courses may tend to be sacrificed: in cases of copublication these elements may become separated from course books, and marginalised, in just the way we saw 'teaching' tended to be.

CONCLUSION: A NEW TEXTUAL 'TYRANNY'?

The history of the relationship between the OU and the BBC is, in part, a story about academics and producers learning how to work together to produce good teaching programmes, which are both well-integrated into academic courses and represent 'good television'. It is somewhat ironic that a largely beneficial shift in methods of text production should threaten such hard-won achievements. And what effects, we may wonder, might the renewed status of text have on the budding, and expensive, applications of computing technologies in distance education courses? At least, the lure of copublication would seem to create certain tensions between uses of text and of all other teaching media in distance education .

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REFERENCES

Brook, C. (1991) 'Co-publication of Course Texts', open D-bate, Issue 9 (OU internal publication)

Chambers, E.A. and Pearson, H. (1989) 'Summary of the results of student feedback for A310: Life and Death, a copublished course', TCC paper No. 47, Institute of Educational Technology (OU internal publication)

Fuller, I and Luxon, A. (1992) 'Collaborative Publishing', The Open University Audit Division (OU internal publication)

Wilson, D. (1993) 'Copublishing: current issues and practice', Book Trade Department (OU internal publication)

The Contribution of the Educational Developer in Quality Distance Education and Open Learning

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This paper seeks to highlight the value of using the assistance of educational developers in preparing of quality distance education programs.

Quality distance education is costly; it can be cost effective. Educational developers add efficiency and quality to distance education. In many institutions the academic educational developers are coupled with support staff as an integral team in the design process for distance and open learning. Developers work closely with faculties assisting with the design of course material and delivery methods. The role is a delicate one and not always understood. In other places we have sought to clarify the activities and the academic dimensions of the role through our books *Le Savoir a domicile, Development design and distance learning* and *Developing open learning courses* (Henri and Kaye, 1985, Parer, 1990, 1992).

From the beginning of correspondence teaching the assumption was that a good teacher could automatically teach at a distance. But in the 1970s, when distance education emerged as a means of mass education, an industrialised teaching process was set up and the functions and tasks of the teacher were broken down. They were spread among various specialists who became partners to share the responsibility of the pedagogical process. Educational developers, media producers, editors and publishers joined the teacher to prepare distance education courses and materials. Traditional teachers were then considered as the 'content expert' specialists. In all experiences there was a varied and mixed commitment to educational development, instructional design and the technology of distance education. Most programs of distance education have achieved degrees of success but have also been characterised by large student dropouts, failure to graduate in minimum time, intermittent student support and dependence on residential components to compensate for the lack of well developed distance teaching materials. In the context of this paper a number of questions arise.

- Does rigorous planning and development lead to greater student success, fewer student dropouts, graduation in minimum time and so greater cost efficiency?
- Is the role of educational development part of the normal academic responsibility or does it require specialist input?
- Is it a worthwhile expenditure?
- What is the contribution of the educational developer to effective and cost effective distance education?
- Is it desirable that educational developers be part of a faculty or within a distance education centre and funded centrally?
- What has been the experience of those universities that have relied heavily on educational developers as part of the development process; has it led to more effective course materials?

This paper raises rather than answers these important current issues.

Technology of distance education

The technology of distance education is based on scientific knowledge taken from various disciplines such as learning psychology, cognitive science, communications and management. This know-how requires a commitment to three principles, namely :

- detailed design that is the integration of all pedagogical elements, instructional strategies and assessment through detailed planning and development;
- field testing and formative evaluation of instructional materials;
- the provision of student support.

The technology of distance education is an integrated system that covers the academic, administrative, production, delivery and support system. The prime concern of such a system must be the academic or pedagogical teaching, learning and certification of the students. It is easy for tensions and conflict to arise between the academic and the administrative structures, between content, pedagogical and media experts (Parer, Croker and Shaw, 1989).

Distance education for mass education is based on the theories of the structured industrialised process in which many specialists contribute with the teacher to share the 'teaching' responsibility. On their parts, students are expected to take responsibility and initiative for their learning which occurs when knowledge is presented in the learning materials and reconstructed within the context of their current knowledge and belief systems.

The technology of distance education, in our understanding, is a know-how of processes and procedures to implement mediated teaching and to facilitate learning. The technology of distance education is often seen as audio, video, computer conferencing, CD-ROM and the high technologies. In fact the technology of distance education has its own dynamic and is not necessarily dependent on these high tech components, although they should be used where appropriate.

Distance education has been characterised by the use of traditional technologies of print, audio and videotapes and correspondence. Yet the immediate future may be different with the influences of the cognitive sciences that are enabling us to understand the process of learning, with the use of desktop publishing and new computer communication technologies that allow for multiple format to present information and communication.

Distance and open learning

Some have argued (Jevons and Guiton, 1992) that distance education is not essentially different from the general pedagogy of education. We disagree and see essential differences in the isolation of he learner, self-management of the learning process, individual rhythm of learning, autonomy, no social and intellectual campus life, teaching is all mediated and so on. Fundamentally good teaching has always involved the development of content and methodology. This remains true in the classroom, in television open learning and in distance education, but the pedagogy and methodology is vastly different for each.

At times open learning and distance education are used synonymously, yet there are clear differences. The principles of open learning are:

- open entry to study;
- maximum of electives and minimum of prerequisites;
- participation in the selection of studies;
- choice of when, where and how to study;
- recognition and credit of prior learning whenever and however it was achieved;
- choice of when and how to be assessed (Johnson, 1993).

Open learning is primarily a goal or an educational policy which is built around the geographical, social and time ideals of the individual learner rather than those of the educational institution.

Bates (1991) argues that distance education is one means to that end; that it is a flexible, yet structured way in which students can study in their own time, place and pace without coming to on-campus lectures. It is important to re-emphasise that open and distance education are rarely found in their purest forms. Large systems are unable to be completely open, and few students study in complete isolation.

Both open and distance education are new modes of delivery and require adjustment from teachers at traditional universities. In the context of the move from traditional to distance teaching the role of the educational developer is seen as the bridge builder between the academic staff and the distance education system. Most university lecturers have been enculturated into classroom teaching on-campus and the academic colleague who is an educational developer has a role in helping staff to design pedagogically effective courses using the modes of distance and open learning.

Design in distance learning

Within the team of academic faculty members, distance education support staff and educational developers, design is the process of planning and developing learning environments. This process is deeply influenced by the extent to which the team members share the explicit or implicit conception of how people learn.

The planning phase leads to decisions about:

- what will be learnt, ie. content elements such as concepts, theories, facts and skills;
- what type of learning is expected in relation to the content elements, ie. memorisation, application, classification, transfer.

The decisions emerging from the planning phase are taken at the initial stage of the process and will guide the development phase.

The development phase involves the actual elaboration of the components that will compose the learning environment such as:

- learning materials;
- learning strategy;
- learning support and communication;
- evaluation strategy and instruments of the learning and learning process.

Planning phase	Identification of content elements Identification of type of learning
Development phase	Presentation of content elements in learning materials Suggesting learning strategies through learning activities Organising learning support and communication systems Developing evaluation strategies

Figure 1: Design components

For many teachers the 'traditional' design process corresponds to careful identification and planning of the content elements: to teach is to tell and to tell leads to learning. 'Traditional' design is content and discipline centred. But in a technological approach, design is the setting up of the learning environment that is composed of learning, teaching and the evaluation of materials and communication means. The learning environment is centred on effectiveness of all components to support learning.

The design of a learning environment is difficult to implement. It is difficult to reconcile the 'discipline' oriented point of view of the content expert, the teacher and the 'learning' oriented point of view of the educational developer, the pedagogical specialist; the 'discipline' specialists do not want to abdicate their 'responsibility' and authority with regard to the pedagogy of the learning process.

Within distance and open learning the reconciliation of the two approaches is crucial. Such reconciliation is desirable because it is cost effective and leads to quality course materials. To make this a cost effective design process and an efficient one we need to:

- draw on knowledge from the cognitive sciences to develop a better understanding of learning processes;
- develop effective learning materials by using *new tools* such as desktop publishing remembering that effective learning materials are not generated by desk top publishing which is only a tool that helps existing learning materials that are already effective;
- develop efficient learning support by using new communication technologies.

Role of the educational developer

As mentioned earlier, academic support staff are an integral and growing group within some distance and open learning systems. In a recent survey to illuminate the role of the educational developer, data was collected from 75 academic staff from 23 countries. A qualitative analysis within the context of pedagogical quality and cost efficiency yielded nine broad categories (Parer, 1993).

1. Illuminating educational issues

Quality is the emerging concern in distance education; today there is political pressure to develop courses speedily to meet economic priorities and serve the national interest. The educational developer supports the academic writers to ensure that the curriculum and pedagogy remains primary and that the needs of the students are protected.

2. Learning processes

In the past decade we have witnessed a growing insistence on the importance of quality teaching and learning (Burge, 1993). Distance education is a specialised mode and the educational developer collaborates to ensure that multiple pathways are offered, that there are coherent conceptual structures for the learning process, that specific objectives are offered and that a surrogate student reviews the course materials.

3. Instructional design

Educational developers work with academics to conceptualise the methodology, participate in field testing, design learning activities and ensure that the language is suitable for teaching and motivating the student.

4. Coherent media environment

There is strong emphasis on the importance of visualising print materials and developing appropriate communication, to explore the alternatives of multimedia, radio, video cassettes and non-print aids. Print still remains dominant and the developer works to combine text, graphics and layout so that they support learning.

Educational developers are information designers to ensure the content elements are useable, functional and understandable; they seek a balance between performance and appearance. Each design must be suitable to its purpose, cost effective to produce, easy to understand and pleasurable to use. Such design is at its most effective and stimulating when it generates an interaction between information and user and is a process that includes aesthetic interaction. Managing that process in distance and open learning is the challenge for the educational developer. (MacKenzie, 1993).

5. Communication and support

Effective communication between students and teachers is essential through assignment, corrections, teleconferences, letters, residential schools and the educational developer offers suggestions from a wide range of experiences.

6. Adapting to the team culture

Distance and open learning need team development processes; the educational developer is part of that team and the link between the faculty and the production, delivery and student support processes. The developer is accessible to writers, is diplomatic when confronted with conflicting opinions, briefs and works with others, consults with members of the team, provides an overall design brief and shares perspective's.

7. Research

Educational developers engage in research to gather student feedback, evaluate programs and study student performance and learning patterns.

8. Professional development

Educational developers assist academic staff to review existing courses, develop new models, keep pace with developments in distance education, student learning, instructional design and state of the art technology.

9. Administration

Educational developers are part of the distance education centred are involved in the design, development, production and student support and they liaise closely with faculty. The educational developer knows that there is no single best way to design distance courses. Teaching at a distance is a complex mixture of pedagogical and teaching methods. Study guides are not a simple replacement of lecture notes; they are in lieu of lectures and must contain all the dynamic elements to facilitate learning with multi levels of communication.

Some conclusions

Thus the educational developer works to ensure that students have a clear overview of the learning pathway. Students are free to follow this pathway, although amongst adult learners we expect that many will choose their own direction. However, a clear pathway enables all students to know the direction and return quickly when confused. Further, distance education materials need to be presented with continuous activities so students are continually asked to build on their life experiences and reconstruct new ideas within the context of the ideas they already have.

We have argued that educational development supports new elements that continually emerge in the technology of distance education and to day these are particularly:

- new insights from cognitive psychology that expand our understanding of how adults process information and grow as deep learners;
- desktop publishing, already pervasive in the business world, is now widespread in academic institutions. Desktop publishing empowers the writers to take responsibility for many of the roles that traditionally have been those of the graphic designers and compositors. Many writers may run riot with the wide variety of selection in desktop publishing and this has led to a changing of the role of the educational developer to ensure that academic writers use the power of desktop publishing efficiently and to enhance student learning;
- major development in communication technologies which will impact on distance education with computer mediated conferencing. Some see CMC as an incredible opportunity for the future to change the status of distance education (Henri, 1992).

We wish to conclude this paper with a few observations about the changing perspective's of distance and open learning with the advent of desktop publishing and computer mediated conferencing. Both these are greatly enhanced by the involvement of the educational developer.

The advent of desktop publishing has modified the role of the educational developer and often gives rise to tension within the centralised model of the industrialised approach. Part of the role of the educational developer is to resolve this dilemma and advise on instruction and textual design. The aim must be to ensure the efficiency of the total operation and at the same time protect the freedom of academics to develop courses that are dictated by the pedagogical needs.

Computer mediated conferencing seeks to bring didactic conversation to the computer age. Several research projects and experiences (Mason and Kaye, 1987, Harasim, 1990, Kaye,1992, Hiltz, 1985, Henri, 1992,1993) suggest that developments within computer conferencing offer a possible breakthrough to change the whole concept of distance learning and 'computer conferencing will probably find a place alongside face-to-face and distance education while at the same time changing the nature of traditional multimedia distance education' (Rekkedal, 1992).

With the use of CMC the future Virtual University will take care of the professional, educational, administrative and social functions and will be accessible from anywhere, at any time and will be able to satisfy interpersonal communications. CMC is suitable for teaching conversation, peer and group learning, the distribution of information, two way communications between tutors, counsellors, students and administration, alternatives to face-to-face teaching, group discussion project work, public tutorial, peer counselling, free flow discussion, library access, staff meetings, registrations, development and distribution of course materials. Computer conferencing does offer a new way to communicate at a distance with students.

Questions arise as to how computer conferencing relates to the important concepts of open education such as flexibility, free or fixed starting dates, pace and individualised study, but it appears well suited to distance education.

Educational developers engage in a wide range of activities. They are the bridge builders, the reconcilers between the academic faculties and the distance education support systems. They are academics with a foot in both worlds to ensure the system works efficiently to deliver quality and cost effective teaching programs.

REFERENCES

Bates. A. 1991. *Technology in open learning and distance education: a guide for decision makers.* The Commonwealth of Learning and the Open Learning Agency, Vancouver.

Burge, E. & Roberts, J. 1993. *Classrooms with a difference: a practical guide to the use of conferencing technologies.* Distance Learning Office, Field Services and Research, Ontario Institute for Studies in Education. Toronto Press Inc., Campus Printing & Design Office.

Dekkers. J. 1991. The development and maintenance of quality instructional materials for distance education: Keynote address ASPESA *Conference Proceedings,* Bathurst.

Harasim, L. 1990. *Online education. Perspectives on a New Environment.* New York, Prager.

Henri, F. and Kaye, A. 1985 *La savoir a domicile. Pedagogie et problematique de la formatione a distance.* Quebec: Presses de l'Universite du Quebec.

Henri, F. 1992. Computer Conferencing and Content Analysis. In Kaye. A. *Collaborative Learning Through Computer Conferencing.* NATA ASI Series. Berlin, Springer-Verlag.

Henri, F. 1993. Formation a distance, materiel pedagogique et theorie de l'education: la coherence du chaement, in *La Revue de i'enseignement a distance.* Vol. viii, no. 1.

Hiltz, S. R. 1985. *The Virtual Classroom: Initial Explorations of Computer-Mediated Communication Systems as an Interactive Learning Space.* New Jersey Institute of Technology, USA.

Hiltz, S. R. 1990. *Evaluating the Virtual Classroom in Harasim, L.* Online Education. Perspectives on a New Environment. New York, Prager.

Jevons, F & Guiton, T. 1992. 'Distance Education as two way communication' in *Distance Education and Internal Studies: Interlocking Study Modes.* Edited by Ortner, G. Published by Lang, Berlin.

Johnson, R. 1993. 'Let's not condemn 'open learning' to be a term of closed meaning'. in *Campus Review, Vol.3.No.33,* Australia.

Kaye, A. 1992. Collaborative Learning Through Computer Conferencing. *NATO ASI Series.* Berlin. Springer-Verlag.

MacKenzie, M. 1993. 'Appearance & performance'. *Communication News, Vol.5(3).* Communication Research Institute of Australia, Hackett, ACT.

Mason, R et Kaye, A. 1989. *Mindweave,* Oxford, Pergamon Press.

Parer, M., Crocker, S. and Shaw, B. 1988. *Institutional support and rewards for academic staff involved in distance education.* Center for Distance Learning, Monash University, Churchill.

Parer, M. S. 1990. *Development, Design and Distance Education.* Centre for Distance Learning, Monash University, Victoria, Australia.

Parer, M. S. 1992. *Developing Open Learning Courses.* Centre for Distance Learning, Monash University, Victoria, Australia.

Parer, M. S. 1993. The educational developer's role-present and future, in *Distance education futures.* Edited by Ted Nunan. ASPESA, Adelaide.

Rekkedal, T. Computer Mediated Communication in *Distance Education in Distance Education and Internal Studies: Interlocking Study Modes.* Edited by Ortner, G. Published by Lang, Berlin.

Cost Effective Methods of Materials Production

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ABSTRACT

The practice of assembling a small group of educationalists, with experience of designing self-instructional material, into a course team is widely practiced and well documented. However, in many instances this practice is not always possible, appropriate and seldom cost effective. In contrast to the course team approach four alternative methods of material production termed Personalized Training, Workshop Generated, Text Transformation and Wrap Around are described, illustrated and analysed in terms of the extent to which they do offer viable and cost effective methods of materials production.

INTRODUCTION

The last twenty years has witnessed an amazing growth in the use of self-instructional materials. Self study courses, such as those offered by Wolsey Hall in the United Kingdom and other national correspondence colleges have been available for many years. However, the establishment of the United Kingdom Open University (UKOU) in 1969 marked a significant point in the use of self-instructional material for adults and in the methods of materials production. Many other national Open Universities have been established (Reddy, 1988) with the growth of several of them likely to be spectacular. For example, it has been estimated (Miller, 1989) that the Indira Gandhi National Open University, India will ultimately enrol 700,000 students. The Sukhothai Thammathirat Open University in Thailand was expected to have 500,000 students by 1990 (Daniel, 1988) and the Radio and Television Universities of China 1,300,000 by 1990 (Hawkridge, 1988). Open Universities have been established in Pakistan, Korea and Japan with others planned in the Asian region. The growth of these, and other universities, is not just in terms of the number of students but in the number and range of courses the institutions must produce. A major cost involves the system of materials production.

For many Open Universities and Institutions of Higher Education, the method of materials production has been influenced by the course team practice developed by the UKOU. This practice of assembling a small group of educationalists, with experience of designing self-instructional materials, is widely practice and documented. However, in many instances this practice is not always possible nor appropriate in relation to the budgets involved. In contrast to the course team approach four alternative models of course production termed **Personalized Training, Workshop Generated, Text Transformation and Wrap Around** are described, illustrated and analysed in terms of the extent to which they do offer viable alternative methods of materials production; methods that are cost effective. Furthermore, these four models acknowledge the two main costs in any materials production process; the staff costs in materials production and course support (Henry, 1993) and the fixed and variable costs associated with the choice of media utilized in the course (Kirkwood, 1993).

PERSONALIZED TRAINING

Personalized Training is designed to equip authors with those skills and techniques they need to deploy when planning and producing self-instructional material *at that moment in time when they need them.* Unlike those models that emphasize a front end loading principle, where the skills and techniques are conveyed at the outset, this approach conveys only those that are needed for authors to progress to the next stage in the process. The model is dependant upon three critical factors in materials production; co-ordination and management of the project, adherence to the production schedule and on-going advice and assistance to authors.

For example, when the UKOU was asked to provide training for members of the National Association of Clinical Tutors (NACT), who were planning to assemble a self-instructional training package for Clinical Tutors (Clinical Tutors are those senior medical staff who provided the post graduate medical education for hospital doctors) a personalized form of training was devised. It involved constituting a small task group, devising a realistic schedule in which a member of the UKOU would not only coordinate the whole project but who would provide the personalized training that was necessary for materials production.

A task group of six individuals was assembled. It consisted of four authors who had considerable experience as Clinical Tutors but none of writing self-instructional material, (these doctors agreed to contribute to the project at the same time as they fulfilled their normal medical and clinical roles in hospital, an educational technologist from the UKOU who had considerable experience of producing self-instructional material, but who did not have a medical background, and a representative from the Joint Centre for

Educational Research and Development in Medicine to advise the group and to provide liaison with the Department of Health who were financially supporting the project. The educational technologist was to act as Task Group co-ordinator, administrator and be responsible for briefing and training; the four medical representatives were to draft the training material. A detailed course schedule was devised for the production of the training package. It specified the dates of all Task Group meetings, the period allowed for materials production, deadlines as well as the turn round time for the circulation of materials if everyone was to be informed prior to the following meeting. On the basis of previous experience of designing similar self-instructional material, and advising and assisting other authors, a series of briefing and training workshops were devised and conducted at the time of Task Group meetings. They were designed to equip authors with the skills and techniques they needed to complete current tasks. A telephone 'hot line' was instituted for any author in need of immediate advice or assistance; it was used infrequently.

This method of material production may be appropriate when a small budget is available for the task in hand, a short production schedule is envisaged and a training investment in the authors is judged to be worthwhile. The NACT Training Package (National Association of Clinical Tutors, 1990) was assembled on schedule, within the budget and met the training needs that had been identified. The exercise demonstrated that it was possible for a small group of medical specialists, with no previous experience of writing self-instructional material, to be equiped with the necessary skills and techniques at the same time that materials were being produced. The product of the exercise was not only a training package but specialist medical staff who had acquired valuable additional writing skills to be used in other projects at some future time. The part-time authors produced material in a limited time period and which did not require the on-going support of tutors or mentors; it thus reduced the staff costs considerably. Furthermore, the training materials were entirely print based thus reducing the fixed and variable costs associated with the media selected for teaching.

WORKSHOP GENERATED

When appropriate teaching material is not available, or doubt is expressed as to its existence, *it can be readily generated in a workshop context by subject matter specialists.* A group of specialist educators, with a specific goal and product in mind, working within a limited time-scale and budget can pool their experience and expertise to generate a set of teaching materials that would be beyond the resources of a single person. This method of materials production does have similarities with that of course team production in that it embodies a collective responsibility to the input but differs in the speed by which material are generated and the roles of the subject matter specialists and editor in the project.

The Workshop Generated process of is illustrated by the production of the medical training material *Seeking Standards in Practice - Coronary Heart Disease Prevention in Primary Care* (The Medicine Group, 1991). Medical authorities recognised the need for guide-lines for Coronary Heart Disease Prevention. Their solution was to organise a residential weekend in which a small group of medical specialists including General Practitioners, a Practice Nurse, a Practice Manager, Medical Educationalists and Medical Writers (editors) met over a weekend to generate material for an appropriate training module. Participants attended the weekend workshop and contributed those outlines they had prepared in response to their brief and generated others. Not only were detailed notes taken during the group discussion, with a tape recorded account made for subsequent review, but summaries of discussion points were agreed and recorded. The intention was to pool the experience and expertise of all the participants and to create a composite of their knowledge. The outcome was a resource package containing a self-instructional booklet of core training material for all medical and administrative staff working within a Coronary Heart Disease Clinic, a series of Activities presenting worthwhile tasks to be undertaken by appropriate staff prior to and during the operation of a Clinic, reference documents, educational materials and information on how to obtain them.

The Workshop Generated model, as a method of materials production, has two attractive features. The first is that it can be obtained extremely quickly. The actual process can be accomplished in hours even though planning the workshop, assembling detailed briefs, coordinating the input of participants and following up the suggestions and sources made by participants may take several weeks. Whilst the task of the medical writer (editor), to present the pooled information, has similarities to that of an author in a course team, it is completed in days and weeks rather than months and years. The second is that it creates a collaborative rather than competitive environment; asking practitioners to share their experience, skills and abilities with others acknowledges their worth and places them in a context where they feel valued. If the context also provides an opportunity for participants to benefit from the experience, skills and abilities contributed by others - to create a resource for the mutual benefit for colleagues, it fosters a collaborative rather than competitive working environment. It exploits the strengths and expertise of individual contributors with others responsible for representing the information in a communicable form. It does, however, place a major emphasis upon detailed prior planning, the allocation of briefs and operation of the workshop to a tight schedule and with a particular product in mind. Whilst the cost of providing high quality residential accommodation and subsistence to a group of contributors may appear high it is negligible when compared to the consultancy or authorship rates that would be incurred in a convention course team model. This, together with the free standing nature of the resource pack and absence of tutor or mentor support reduces the staff costs drastically. The sole reliance upon printed material also reduced the fixed and variable media costs to a minimum.

TEXT TRANSFORMATION

When materials are already in existence, but are considered to be inadequate for their intended purpose, *they can be transformed into high quality self-instructional material* by the process of Text Transformation. This process differs fundamentally from the course team process which typically commences with broad aims, specifies detailed objectives with authors typically remaining responsible for their own material and its' development. The Text Transformation process typically starts with developed materials. The task is to determine the degree of change that would be acceptable and to differentiate between those changes that are desirable and those that are feasible; either within the time scale, acceptance by original authors or cost. The attributes needed by the transformer have been identified and described (Macdonald - Ross and Waller, 1976). More recently the role of the transformer has been discussed, guide-lines for the task and examples of the process provided - focusing on the broad aims of the course, the characteristics of the learners as well as the teaching strategies and methods of presentation to be deployed (Melton, 1990).

An example of Text Transformation, that closely resembles the procedures outlined by Melton, is provided by the population training programme (POPTRAN) that was originally developed within the Cardiff University Population Centre, Great Britain in the mid 1980s. POPTRAN was originally a Computer Assisted Learning (CAL) package designed to help users understand more about population statistics and dynamics. It consisted of a series of nine computer simulations of population representations (on disk) and three substantial printed manuals designed to help users explores nearly 200 national populations according to certain parameters. However, an independent review of the package suggested that a series of changes could enhance its teaching effectiveness.

Minor changes included the removal of textual duplication, reduction in the number of examples and relocation of technical material to appendices. Moderate changes included the redesign of certain computer graphics, eliminating examples of the computer being used as an 'electronic page turner' rather than a machine that could store, retrieve and provide dynamic population displays and sequencing of the computer programmes. Major changes involved a complete reconceptualisation of the how POPTRAN could be used as a self-instructional package rather than a tutor lead package.

The CAL package, that had taken seven years to develop, was subsequently transformed into an Introduction and Guide to POPTRAN, a series of nine computer programmes and corresponding Self-Instruction Guides and a Technical Manual within weeks. Sections of the package were piloted in realistic contexts with its overall effectiveness evaluated in field trials (Henderson, Kinzett and Lockwood, 1988).

The task of the transformer has similarities with that of the editor described above. Both play a central, influential role in assembling the academic material generated by others. However, whilst the transformer typically has had no part in assembling the original material the editor may often be heavily involved. Furthermore, it would be far too limiting to regarded Text Transformation as only a remedial activity; one to salvage existing material. An advantage of this process, it is argued (Lewis and Paine, 1986, Rogers, 1987), is that existing material can be adapted for different teaching purposes and even different audiences. The staff input used in transforming the original materials was a fraction of that previously expended. The self-instructional nature of the CAL programs and manuals dispensed with the need for a tutor or demonstrator. However, whilst the variable costs of providing printed materials and floppy disks was small the teaching system depended completely upon access to appropriate computer hardware; a cost that could be significant if an institution had to purchase such hardware merely to run the program(s).

WRAP AROUND TEXTS

When books, articles and other printed or audio visual materials are already in existence they can be adopted as core material and *wrap around texts* written to create a self-instructional teaching package. Creating high quality self-instructional material can be an expensive and time consuming task; especially if the number of learners is relatively small. If published materials already exist, that can be drawn upon, it can offer an extremely effective and efficient way of assembling teaching material; especially if the existing published material represents the vast majority of the study material.

When the Open University decided to produce H521 *Producing an Open Learning Package* (Open University, 1991) it was tempting to assemble teachers and trainers into a course team, to pool their expertise, and generate a multimedia teaching package. However, attendant time constraints, costs and limited population of learners made such an approach unacceptable. Fortunately the Open University was able to identify academic staff who could review existing materials, suggest ways in which they could be supplemented, and identify a member of staff who could assemble the study guide to wrap around the existing materials. The actual production of H521 was based upon a previously published text of 389 pages (Rowntree, 1991) and supplemented by other teaching materials. One of these teaching materials was an audio tape made up of extracts from audio vision examples; a combination of audio tape with other printed / visual materials (side 1), and specially recorded interviews with individuals who were in the process of assembling self-instructional teaching material (side 2). The other main teaching material took to form of a study guide, 100 pages which referred directly to the published book and to extracts on both sides of the tape. Optional tutorial support was available on request at an additional cost.

H521 *Producing an Open Learning Package* was assembled by a single author in a period of 9 months - a period which also included piloting the draft material with trainers in industry; trainers who eventually contributed their comments on the audio tape that was part of the teaching package. It represented a quantity of teaching material that would normally have taken a small team of academic staff two years to assemble. The major benefits were that high quality teaching material could be assemble extremely quickly and at low cost. The major part of the course, the published text, was already in print. Examples of of audio vision were readily available and other audio materials could be rapidly produced. A pool of experienced tutors were available from within the University.

However, although the costs in the present example of a wrap around course were small, the potential costs are worth noting. For example, when using existing materials the producers need to be aware of the copyright implications; copyright costs can be significant. Furthermore, if the assembled package of material is dependent upon a published text one should ensure it will continue in print! A second potential cost relates not to materials but to the individual(s) involved - to the pressures upon the author, working alone without the support and encouragement of his colleagues. A great strength of the course team model of materials production is the mutual support that is available as well as the specialist help from particular members of the team. It takes an experienced and confident author to take on the task of assembling, single handed, a *wrap around* course. Fortunately, in the above example, the Open University was able to call upon Professor Derek Rowntree to assemble the study materials to wrap around his own book. Indeed, the exercise was considered so successful that it is to be repeated in a forthcoming course.

The example illustrates that when existing published materials can be located, and an experienced course developer is available, high quality, wrap around materials can be assembled extremely quickly with extremely low cost staff costs. Restricting media to print and audio tape reduced variable costs to a minimum.

CONCLUDING COMMENTS

Each of the above methods of materials production have been successfully applied. The key question was to decide, with the resources available and constraints present, which of the methods was possible and appropriate. The decision is influenced by a number of factors; the stage of materials development, the writing abilities of authors, decisions regarding investment in author training and over what period as well as the skill of prospective task group co-ordinator, workshop presenter, text transformer or author.

Given sufficient advance notice all four methods are possible, although invariably production deadlines are a deciding factor. A major distinction between the process of developing texts and transforming them is the investment that one wishes to make in original authors. If it is unlikely that the author of prospective teaching materials will be involved in similar activities in the future it may not be cost effective to invest considerable time, effort and funds in the process; utilizing an experienced transformer is may be more appropriate. The availability of specialists may also dictate the method adopted. Contributing to a weekend workshop may be feasible whilst a commitment to an arduous production schedule may not. Needless to say a skilled individual could probably operate all four methods, and combinations of them, successfully.

REFERENCES

Daniel, J. S. (1988), 'The Worlds of Open Learning'. In: *Open Learning in Transition*. N. Paine (ed), Cambridge: National Extension College.

Hawkridge, D.(1988), 'China's Television Universities: The Future'. *A paper presented at the Educational Technology International Conference, Plymouth Polytechnic*, 5-8 April.

Henderson, E. S., Kinzett, S. and Lockwood, F. G. (1988), 'Developing POPTRAN, a population modelling package', *Brit. J. Ed.Tech.*, 3, pp. 184-192.

Henry, J. (1993), 'Resources and Constraints in Open Learning'. In: *Materials Production in Open and Distance Learning*. F. Lockwood (ed). London: Paul Chapman Publishing Ltd., 1993 (in press)

Kirkwood, A. (1993), 'Selection and Use of of Media for Open and Distance Learning'. In: *Materials Production in Open and Distance Learning*. F. Lockwood (ed). London: Paul Chapman Publishing Ltd., 1993 (in press)

Lewis, R. and Paine, N. (1986), *How to find and adapt materials and elect media*. Open Learning Guide 8, London: Council for Educational Technology.

Macdonald-Ross, M and Waller, R. (1976), 'The Transformer'. In: *The Penrose Annual*. London: Norwood Publications Ltd., S. Greenwood and C Goodacre (eds).

Melton, R. F.(1990), 'Transforming text for distance learning', *Brit. J. Ed.Tech.*, 3, pp. 183-195.

Miller, J. K. (1989), 'Indira Gandhi National Open University', *Open Learning*, 1, pp.53-55.

National Association of Clinical Tutors, (1990), *NACT Training package*. NACT, 6 St. Andrew's Place, London.

Open University. (1991), *Developing an Open Learning Package*. Milton Keynes: Open University Press.

Reedy, G. R. (1988), *Open Universities; the ivory towers thrown open*. London: Oriental Press.

Rogers, W. S. (1987), 'Adapting materials for alternative use'. In: *Open Learning for Adults* M. Thorpe and D. Grugeon (eds), Harlow: Longmans.

Rowntree, D. (1991), *Teaching Through Self Instruction*. London: Kogan Page.

The Medicine Group. (1990), *Seeking Standards in Practice - Coronary Heart Disease Prevention in Primary Care*. Oxford: The Medicine Group.

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